PROGRESSIVE ARCHITECTURE

4 april 1956

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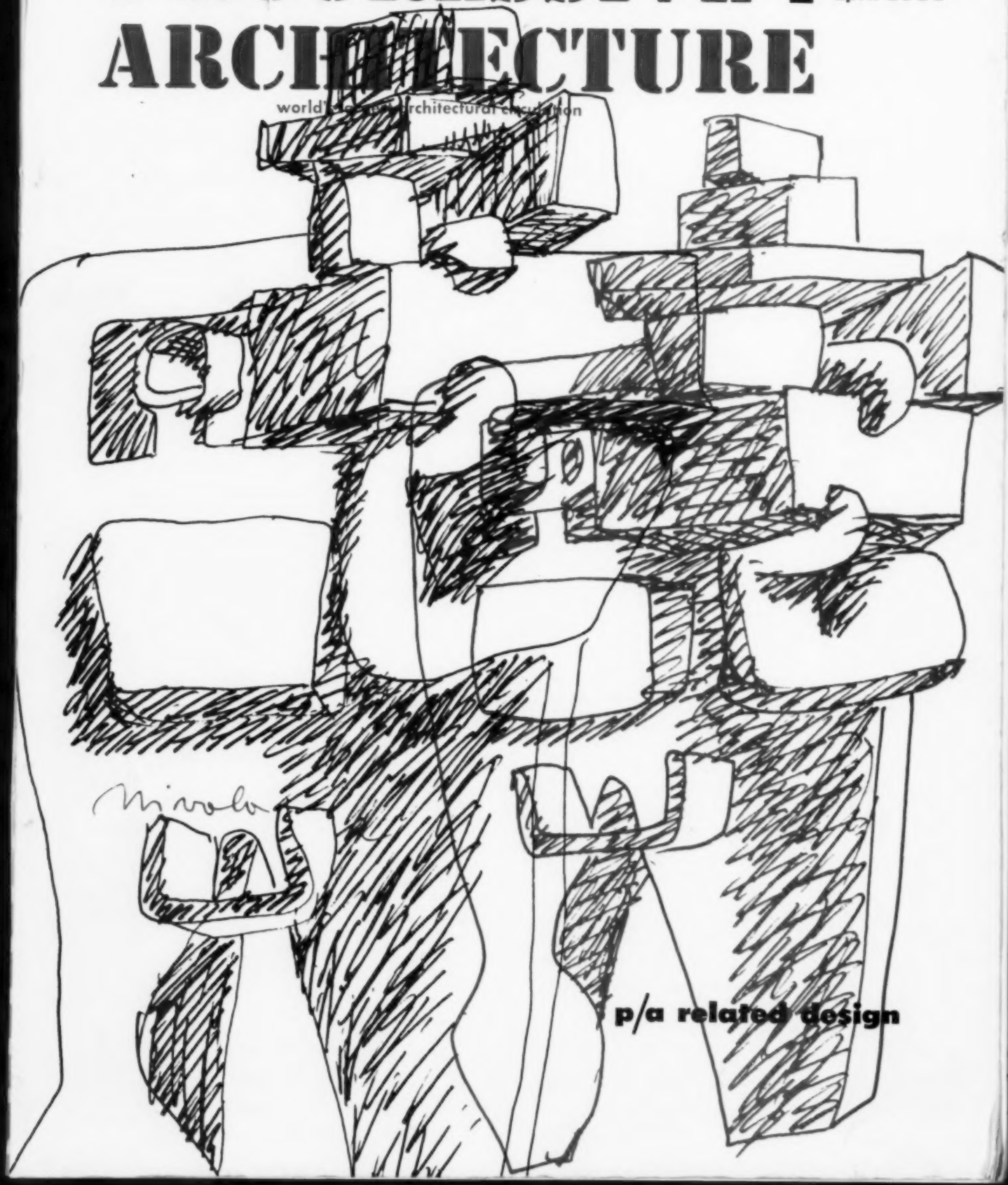

p/a related design

SPECTACULAR ROOF DESIGN—
St. Louis Air Terminal Building

Airport Terminal Building, St. Louis, Mo. Architects: Hellmuth, Yamasaki & Leinweber; Structural Engineer: William C. E. Becker; Consultants on Dome Design: Roberts and Schaefer of Chicago; Chief Engineer City of St. Louis: W. R. Crecelius; General Contractor: L. & R. Construction Co.; Design of Concrete Mix: Robert W. Hunt Co.; Pozzolith Ready-Mixed Concrete—used throughout—produced by Majestic Materials Corp. All of St. Louis, Missouri, except as noted.

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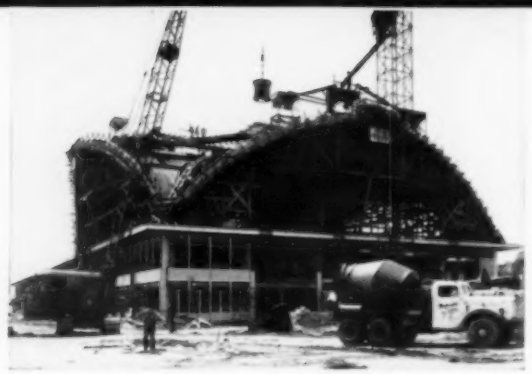

Upper View: Shows roof construction. *Lower View:* Shows placing and finishing concrete. Each dome contains about 400 cu. yds. of concrete and 60 tons of reinforcing steel, and was poured in one continuous operation.

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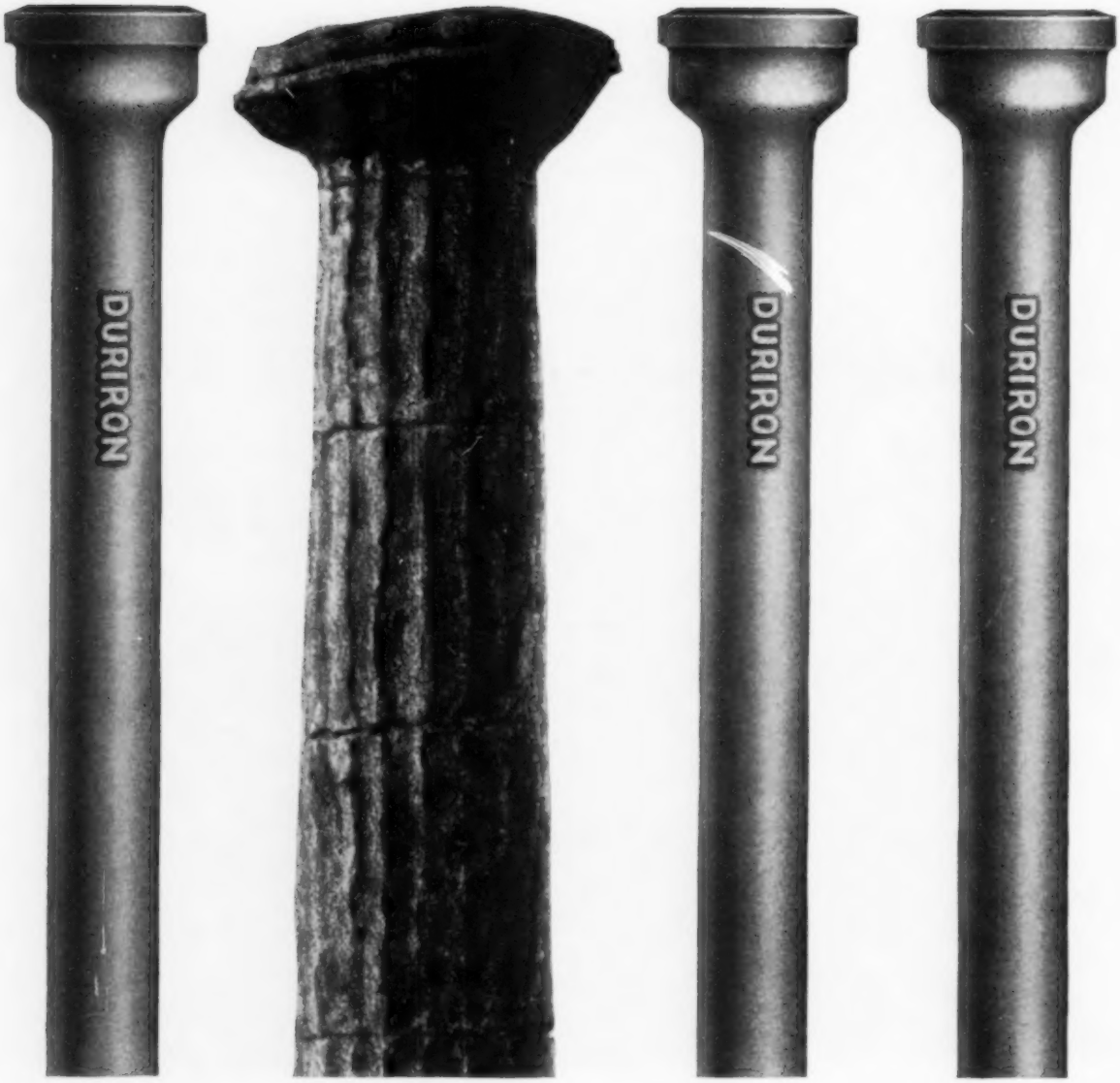

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PROGRESSIVE ARCHITECTURE

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It's the Law by Bernard Tomson

P/A Office Practice *article on the Strengthening and Enforcement of Architectural Licensing Statutes.*

Prior articles have emphasized the importance of militant action on the part of architectural organizations to strengthen architectural licensing statutes and their enforcement (IT'S THE LAW, *December 1949 P/A*). Many states permit the unqualified and incompetent to practice architecture, only prohibiting the use of the title "architect." Other states prohibit the practice of architecture except to duly licensed architects, but provide no effective means of enforcement. In either situation, the public's safety and welfare are jeopardized and the livelihood of the architect is threatened.

During the past four years, the Georgia registration and licensing statute has gone through a series of changes, which has resulted in a much improved law. In 1951, the law of Georgia provided that anyone could legally practice architecture, provided he did not call himself "architect." The law expressly permitted ". . . persons, mechanics or builders (to make) plans and specifications for, or supervising the erection, enlargement or alterations of buildings or any appurtenances thereto to be constructed by themselves or their employees. . . ."

In 1952, the Georgia statute was drastically changed. Plans for all construction over $10,000, except for farm buildings and one- or two-family residences, were required to be drawn by architects. The practice of architecture by corporations was excluded. Architects were required to sign and seal their drawings and a penalty of $1000 maximum or six months' imprisonment was provided. In 1953, the Georgia law was further strengthened by providing an injunctive procedure.

Georgia Chapter of AIA was continually working on plans to strengthen the statute. Many recommendations had been sent to the board which administered the statute. Upon the recommendation of the board, the statute was again amended in 1955 and the changes in the law included many of the recommendations of the Chapter. The statute was redrawn by the office of the Attorney General of Georgia and many provisions clarifying and strengthening the law in respect to qualification, revocation of license, and injunctive procedure were added.

The evolution of the Georgia law is an example of what can be accomplished where the profession itself is active in pressing for action and the co-operation of public officials is obtained. Bernard B. Rothschild, president of Georgia Chapter, in an exchange of correspondence between us, has stated:

"By and large the law is better than it has ever been and it is approaching the stage where trial and error are proving its workability. The Attorney General's office is working with the Board now to make certain that the law has sufficient teeth. The co-operation between the Board, Georgia Chapter, and the Attorney General's Office is really most gratifying." Rothschild further, however, points out that the Georgia statute requires further change. He states:

"Our law says a corporation cannot *practice* architecture but it can employ an architect to practice for it. This subterfuge permits contractors and others to enter into the architectural profession, with an often unprofessional attitude. I am hoping we will change the law to make firm names contain only the names of living, registered architects or engineers and that all partners, or corporate officers and directors must be registered architects and engineers."

It is a cliché to state that a law is only as effective as its enforcement. Under the Georgia law, for example, I have been informed that there has been no conviction for its violation during the past 16 years. The usual State Board which administers the registration and licensing law often does not have the means or power to investigate possible violations and to police the practice of architecture. Rothschild in referring to the Georgia law points out:

"There is one observation that must be made, however: The teeth in the law are only as good as the enforcing agencies. . . . The next step that we in Georgia Chapter must take—and this is as important as the law itself—is to set up a policing agency. The Chapter is going to have to go to work to see what can be done. . . . How to create and finance the position of deputy or investigator for the Board is the problem we really have to solve. This is a real challenge."

The profession still has much to do in "selling" to the public and to the State legislatures the need for strong legislation with means of effective enforcement arising from the dangers inherent in the practice of architecture by the unqualified and incompetent. There is no substitute for work at the "grass roots" level. Each local chapter must continue and increase its efforts in this direction in its own state. Each State Chapter should consider carefully how to become a policing arm of the State to insure effective enforcement. In many states, the pattern already set up for physicians and attorneys would indicate how enforcement could be made truly effective.

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Mechanical Engineering Critique *by William J. McGuinness*

P/A Office Practice *column on mechanical and electrical design and equipment, devoted this month to Air Conditioning of Socony-Mobil Building.*

With the increasing demand for air-conditioned office space, even at premium rentals, big-building owners today regard year-round air conditioning on the same level with electricity and heating—not any longer as a luxury service but as an essential utility.

Galbreath Corporation, owners of New York's mammoth new skyscraper, the 45-story Socony-Mobil Building, found that an air-conditioning, heating, and ventilating installation designed to fit the building and functionally located for simplified maintenance not only saved thousands of square feet of rentable space, but also reduced by 14 percent the ordinary equipment and installation costs on similar jobs of this magnitude and caliber. Installation costs for the 1,250,000 sq ft of rentable space amounted to about $4.30 per sq ft, considerably below the $5 plus which has been typical for most jobs of this sort. Cost per ton of the 3900-ton refrigeration plant amounted to about $1300, compared with a $1400 average. The same equipment that provides cooled, dehumidified air in summer serves as a heating plant in winter.

The design of this installation differs quite radically from the conventional method of placing all refrigeration in the basement, piping chilled water vertically, and handling the air at each floor level from a heat-transfer and fan room. The Socony-Mobil system makes use of high-pressure, high-velocity (4000-6000 ft/min) air distribution in vertical conduits. Two of these enclosed in a return-air shaft serve the interior zones. Numerous smaller ones (4 to 12 in. in diam), located at alternate exterior columns and supplemented by chilled water at the other exterior columns, furnish the perimeter conditioning.

This distribution permits the concentration of all refrigeration, air-handling, and auxiliary equipment at but three locations: sub-basement, roof, and part of the eighth floor. Much rentable space is saved and the vertical-distribution system is remarkably compact.

The refrigeration plant is divided between the sub-basement and roof. In the sub-basement are three centrifugal machines—one of 500 tons and two of 1000 tons each. Purchased steam operates these machines and then flows at lower pressure to the roof, where it operates three absorption machines with a joint capacity of 1400 tons. The eighth-floor utility space is used for heat-transfer and air-handling units only. Conditioning of the block-square first and second floors is from central units in the sub-basement. Unique, however, is the distribution in the upper stories. Complete, central-station conditioning units utilizing return air and some outdoor air are located on the eighth floor. This may be considered as the center of gravity of the volume of the building, which reduces to a tower at the fourteenth floor. From the eighth, supply is up-fed to the fourteenth and down-fed to the third. Air is returned from these floors through a central shaft. Chilled water originates at the eighth floor and is up- and down-fed at the perimeter, parallel to the vertical high-velocity air conduits. The roof units are identical in principle with those on the eighth floor; they down-feed conditioned air at the interior and perimeter, and produce chilled water for down-feed at the outside walls. This service reaches down to the fifteenth floor.

Six cooling-tower units are located on the roof to serve all refrigeration. The roof units of refrigeration are located near by, resulting in short piping and lower pumping costs.

A strip 15 ft wide around the perimeter of all floors constitutes a peripheral zone. This is subdivided into groups of several stories and also as to directional exposure. Air is received by sill-high continuous cabinets, slowed down, and sound-deadened. It is then discharged upward at the window, inducing flow of room air through the cabinet. The latter passes over coils of chilled water. This is controlled to effect zoning changes and also in response to local thermostats which permit a final adjustment at each bay to satisfy the occupant.

A complementary system distributes air to interior areas. Here, air is pumped at high pressure and velocity through a pair of interior conduits, one containing cool, the other warm air. They are located in the vertical return-air shaft at the core of the building. The proportion of cool and warm air passing into main ducts at each floor can be adjusted by automatic controls. Floor-to-floor temperature needs will undoubtedly vary, but by this "mixture control" method any individual floor can be supplied with the exact temperature desired.

On each floor, lightweight connecting duct branches carry the air outward along the ceiling to control boxes at about the center of every bay. After speed and sound reduction, it is fed through flexible fireproof connections to four ceiling diffusers. The volume of air delivered is controlled by means of a damper. Tenant changes are facilitated by these movable registers which are designed to blend with the ceiling and with the staggered position of the flush-lighting fixtures.

Remarkably little overhead space is required for fitting in the high-pressure spiral ductwork used in the air-carrying loop system. Its slim diameter of only 12 in. is considerably less than that required in conventional air-conditioning systems that operate on low pressure. Much overhead space is thus gained. Moreover, acoustical ceiling material neatly masks all ductwork.

The whole system has been designed to facilitate maintenance, both of the refrigerating, heating, and ventilating plant and of the building itself. One great maintenance advance is expected through the use of electrostatic air filters in conjunction with air-handling equipment. Removing practically all airborne dirt, dust, soot, and smoke particles—down to 100 times smaller than the diameter of a human hair—the filters will be of immense aid in providing safe, clean, working space.

Centralizing the conditioning equipment on three floors localizes the mechanical maintenance problem. Job modifications which will result in easier maintenance and better control have been effected by Lester Kelly and John Bassett, who will operate the completed plant and who have been on the job to supervise its installation.

Building owner: Galbreath Corporation; Architects, Harrison & Abramovitz and John B. Peterkin; Consulting Engineers: Jaros, Baum & Bolles; General Contractor: Turner Construction Company; Mechanical Contractor: Kerby Saunders, Inc.; air-conditioning equipment manufacturer: Carrier Corporation.

An Important Scientific Contribution
by the National Bureau of Standards
A Law of Appreciating Returns

The Law of Diminishing Returns in Heat Resistance, which affects so many building materials, has been found to be offset by a Law of Appreciating Returns which applies to parallel, reflective spaces.

The *importance* of this LAW will be felt in terms of winter and summer comfort in every kind of building, in fuel conservation, air-conditioning, cold storage. The practical and simple application of this LAW, *at very low cost*, will be about 8¢ per sq. ft. area of top floor ceilings and outer walls.

The findings of H. E. Robinson and F. J. Powlitch, under the direction of R. S. Dill, all with the National Bureau of Standards, were recently published by the Housing and Home Finance Agency in a booklet entitled "The Thermal Insulating Value of Air Spaces, Housing Research Paper 32."

Their findings show that for heat flowing *up* and *laterally*, successive reflective parallel air spaces, follow a law of appreciating returns.

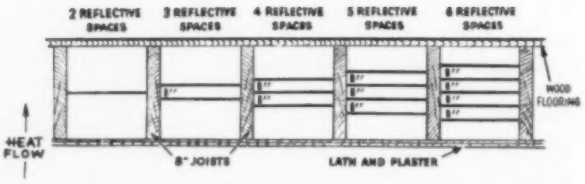
THE EXPLANATION OF THE LAW

If the *temperature difference* between bounding surfaces in an air space is decreased, there follows a significant decrease in convection, which is particularly important in up and lateral heat flow.

Such decrease can be attained, for instance, by dividing 8" ceiling joist spaces with aluminum sheets so they form successive reflective air spaces.

Here's a simple experiment! Assume the depth of one 8" joist space is divided in half by an aluminum sheet; another such space divided in 3 parts by 2 such sheets centered 1" apart; the next space divided in 4 parts with 3 sheets; the next in 5 parts with 4 sheets; another in 6 parts with 5 sheets.

Assuming the original 8" space has a *temperature difference of any fixed amount*, the more the space is divided, the greater is the *division of the*



original spread of temperature; so EACH SPACE CARRIES A SMALLER BURDEN OF TEMPERATURE DIFFERENCE. There follows a *decrease* in convection and a corresponding significant increase in the insulating value of the spaces. This holds true down to space depths of about 1", below which the diminution in insulating value due to increase in conduction because of lessening the depth, becomes the controlling factor.

It was found that *each* 1" reflective space where the joist-space was divided in 6 parts, had greater insulating value than each 1" space where the joist-space was divided in 5 parts; which in turn had greater value than each 1" space where there were 4 subdivisions, etc. The total insulating value in an 8" joist space of 6 such reflective spaces was *more than twice* that of 3 such spaces, more than 50% better than 4 such spaces.

The Thermal Factors below were calculated by Infra engineers, with the use of Research Paper 32. The ceiling joist space was taken as 7⅝" deep; wall stud space 3⅝"; floor joist space 9⅝". For 5 and 6 space side heat flow, 5⅝" stud space was used. The roof was taken as asphalt shingles or roll roofing on 25/32" solid wood sheathing. Air temperatures were assumed as follows:

	Heat Flow	Inside Temp. °F	Outside Temp. °F	Mean Temp. °F	Temp. Diff. °F
Walls	side	70	0	35	70
Ceilings	up	80	10 (attic)	45	70
Ceilings	down	90	120 (attic)	105	30
Floors	down	65	30	48	35

THERMAL FACTORS FOR PARALLEL REFLECTIVE AIR SPACES
(In Btu per sq. ft., per hour, per degree F)

Where Dividing Media are ALUMINUM with .03 emissivity, and PAPER, spaced 1" apart.

Calculated on the basis of work done by the
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For Housing & Home Finance Agency's Research Paper No. 32

Number of REFLECTIVE SPACES	UP-HEAT C FACTOR	UP-HEAT U FACTOR Attic Floor (roof excluded)	UP-HEAT U FACTOR Ceiling & Roof (unfloored attic)	DOWN-HEAT C FACTOR	DOWN-HEAT U FACTOR Attic Floor (roof excluded)	DOWN-HEAT U FACTOR Ceiling & Roof (unfloored attic)	DOWN-HEAT U FACTOR Floor over Crawl Space	SIDE-HEAT C FACTOR Wall	SIDE-HEAT U FACTOR Wall
4 REFLECTIVE SPACES 2 aluminum sheets 1 paper sheet....⅞" apart	.106	.084	.082	.035	.032	.032	.039	.069	.057
5 REFLECTIVE SPACES 3 aluminum sheets 1 paper sheet....1" apart	.082	.068	.066	.031	.029	.028	.033	.051	.044
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Card-Indexing for Manufacturers' Literature

*by Harry Terry**

P/A Office Practice *column on supplementing the AIA filing system for manufacturers' literature with a Dual-Card-Index System.*

Properly prepared catalogs and other literature from manufacturers of building products are an integral part of any engineer's or architect's office. They are invaluable for technical reference, for prices, and for specification information.

The question is: how they can be used most effectively—a question just as important to the manufacturers who supply such literature as it is to the recipients.

Despite its 35 years of service, the Standard Filing System and Alphabetical Index of the American Institute of Architects lacks complete effectiveness for indexing information on the materials, appliances, and equipment employed in construction and related activities.

The New York Association of Consulting Engineers has developed a dual-card-index system to supplement and utilize the AIA system and to improve its efficiency; a system which could be installed with little, if any, additional expense to architects, engineers, or manufacturers.

The basic AIA system of numbering each item with code numbers from the Alphabetical Index (or having manufacturers do so) permits filing of the material so that rapidity and accuracy of refiling are assured, and an opportunity exists for indefinite expansion of the files. (The Alphabetical Index gives classifications and file numbers for 41 principal product divisions and an alphabetical index of products. Titles of the divisions conform in general to those usually included in a comprehensive construction and mechanical equipment specification. The major division classifications are supplemented by subdivision classifications and file numbers referring particularly to individual types of materials, appliances, and equipment.)

To find something under the AIA system, however, two searches are necessary: one of the manual giving classification numbers under which it may be filed; the other, a search of the files themselves to pick out the desired item.

Furthermore, this system fails to accumulate a manufacturer's literature in one position in the files, inasmuch as they are cataloged by products. Frequently, considerable printed matter must be perused to find one item or even to determine whether such an item is on file. Frequently, also, much printed matter is received by the average engineer or architect that fails to conform to the AIA subdivision classification numbers and hence is "hidden" in the files under some general division number.

In the offices, the system often means wasted time for the engineers, architects, draftsmen, specification writers, and others. In addition, salesmen or manufacturers' representatives often receive hurried calls for literature which cannot be found, even though it may have been received and filed. One reason for this may be that catalogs and other literature are often out of the files and in use—or perhaps are lying in a basket to await refiling—while another prospective user searches futilely, unaware that such material exists in the office.

The index system developed by the NYACE obviates practically all these problems.

It is based on two sets of indexing cards: one based alphabetically on the names of manufacturers, listing their products, and giving the file index number; the other set based on the products, bearing the names of manufacturers. Together, they provide a cross-index locating the catalogs and other printed material without extensive searches of the files. They provide a record also of *what* is on file. Some engineers and architects already are cross-indexing their printed material in this or some similar manner. While the system involves clerical time, it is economical from a standpoint of time saved for professional and technical aides.

The NYACE, after extensive surveys and careful study, is convinced that issuing companies would assure better use of their products by providing such cards originally with their literature. The cost of the cards would be small. They should be suitable for a 4" x 6" card file since, even with the manufacturers furnishing printed index cards, some hand-written ones to be prepared by engineers and architects would be required.

For the architect and engineer, the value of this system seems obvious. Folders containing manufacturers' literature would be filed by the AIA classification numbers, as at present with the AIA system, and the index cards would speedily provide a cross-index for locating material in the catalog file. The product-index cards filed by AIA classification numbers would present convenient groupings of products for rapid location in catalog files; and manufacturers' index cards filed alphabetically would show on one card the products available and the catalogs received from each manufacturer.

These are also distinct advantages for the manufacturer. Certainly, a card-index system would assure better and more efficient use of literature which has been distributed. Thus, there should be an appreciable conservation and more effective use of the material. Too much literature is wasted through duplication and careless handling. It is entirely possible that the additional cost of the cards, if provided by manufacturers, would be offset by resultant economies in printing and distribution costs.

**Public Relations Chairman, New York Association of Consulting Engineers.*

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Today's modern school planners recognize the value of consulting Wayne early . . . at the planning stages of new gymnasium building. They like the sound counsel and professional seating guidance that helps them plan and build more effective, efficient gymnasiums of tomorrow.

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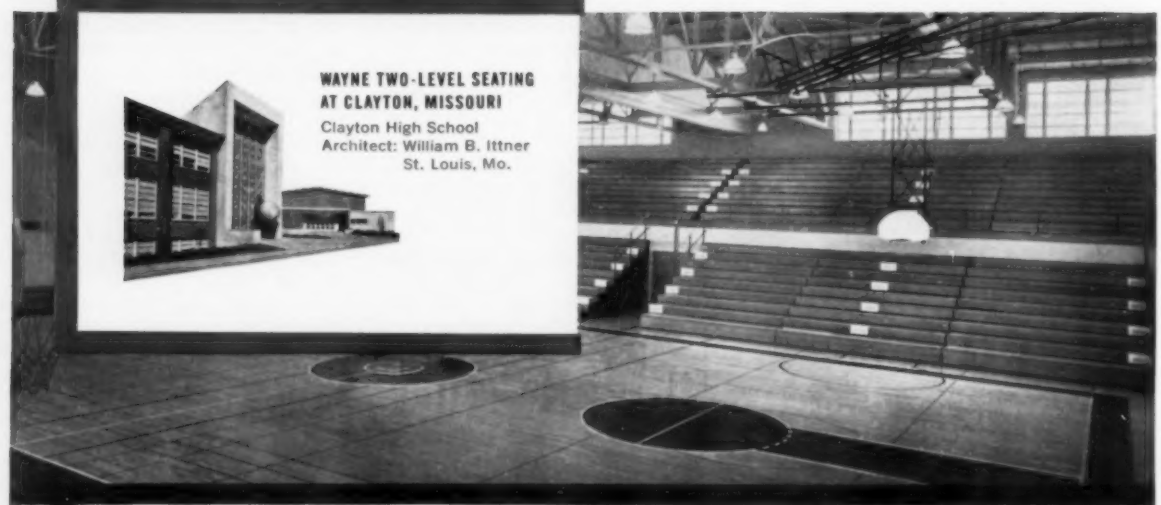
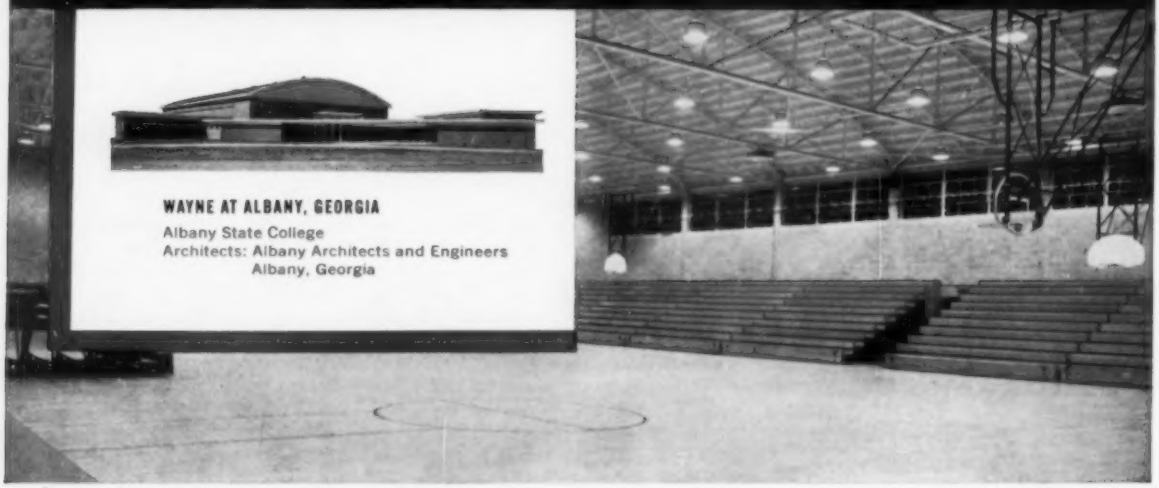


WAYNE AT ALBANY, GEORGIA

Albany State College
Architects: Albany Architects and Engineers
Albany, Georgia



Masonry Walls: Specification Clinic by Harold J. Rosen*

P/A Office Practice *column on a clinic to diagnose materials that appear in specifications.*

From time to time this space will be used as a clinic to diagnose materials that appear in specifications. Formats for specifications are plentiful, but information on the chemical and physical properties of materials and combinations of materials, while available in voluminous reports from many sources, requires considerable time to digest, evaluate, and incorporate in new specifications. Carefully planned designs require materials which will not cause the loss of a client because your dream house leaks, doors warp, calking sags, built-up roofs blister, paint peels, and plaster pops.

Let's analyze leaking masonry walls. Leaks in masonry walls are the result of the penetration of water through openings between mortar and brick rather than through mortar or brick. The specification must be written so as to minimize or eliminate almost completely this possibility. Most authorities agree that workmanship, rate of absorption of masonry units, and water retentivity of mortar are the controlling factors affecting the construction of watertight masonry walls.

WORKMANSHIP: Under the heading of workmanship, or laying of masonry, specify the following:

"Brick shall be laid in a full bed of mortar without furrowing. Head-joints in stretcher courses shall have head of each brick fully buttered with mortar. Header brick shall have side fully buttered with mortar. All brick shall be 'shoved' into place so that the mortar oozes out at the top of the joints without reliance on later slushing to fill the joints."

Laying the heavy back-up first and parging its outer face is preferable to laying lighter face brick first. This prevents the possibility of dislodging facing brick when laying heavier units and breaking the mortar bond of the face brick. Parging between face brick and back-up adds to the moisture resistance of the wall. In addition, parging of back-up is less likely to dislodge the heavier units than parging the lighter face brick.

If hollow clay tile or concrete units are used for back-up of face brick specify the following:

"The back-up shall be laid first to header-course height and then the surface of the back-up in contact with the face brick shall be parged with a full ⅜" coat of mortar. Then lay the brick facing, filling with mortar any voids between brick and parging."

The method of finishing the mortar joint has much to do with increasing the resistance to moisture penetration. The tooled, concave joint which compresses the mortar tightly against the masonry units produces the best resistance to water penetration by densifying the surface of the mortar. Joints should be made after the mortar has received its initial set; any initial shrinkage is then compensated for. Specify joints as follows:

"After mortar is 'thumbprint' hard, finish joints with a pointing tool to form a concave joint, using sufficient pressure to compact the mortar and provide a smoothly finished joint with exposed edges of mortar in positive contact with the brick."

RATE OF ABSORPTION OF BRICK: For mortar to reach its ultimate strength and develop full bond with masonry units, it must have sufficient water present to complete hydration. Brick with a high rate of absorption will suck the water from the mortar before hydration is complete, weakening the bond between mortar and brick and inducing shrinkage cracks in the mortar through which water may penetrate. The suction rate of brick, not to be confused with the total water absorption, will determine whether the brick will suck water out of the mortar. Wetting of low-absorption brick or excessive wetting which results in water on the surface of the brick eliminates the proper brick suction necessary to draw the mortar into the pores of the brick and diminishes the bond between mortar and masonry. A simplified method of determining rate of absorption may be incorporated in the specifications as follows:

"The rate of absorption of brick shall be determined by drawing a circle 1" in diameter with a wax crayon on a surface which will be in contact with mortar. With a medicine dropper, place 20 drops of water inside the circle and note the time required for the water to be absorbed. If the water is absorbed in less than 1½ minutes, the brick pile from which the sample has been taken shall be wetted. Wet such brick by playing a stream of water on the pile until water runs from each individual unit. This shall be done several hours before the brick units are used so that no film of water will be present on the brick surface when laid."

Total absorption of brick is of importance also. Hard-burned brick with a total water absorption of less than 4% are generally vitrified or glassy and become extremely difficult to bond with mortar. This permits a separation of brick and mortar and opens up a passage for water leakage. Specify brick having a total absorption of more than 4%.

If concrete block is used for back-up it should be kept dry and laid dry. We will cover the subject of concrete block more thoroughly in a future article.

WATER RETENTIVITY OF MORTAR: In general, water retentivity is a measure of the flow and workability of a mortar. In the laboratory, the water retentivity is determined by measuring the flow of mortar initially and then measuring its flow after removing some of the water by suction. The water retentivity is expressed in terms of "flow after suction" and it has been determined that mortar should have a flow after suction of not less than 70% of the initial flow. Water retentivity is the property of a mortar which prevents "bleeding" or "water gain" when the mortar is in contact with relatively impervious units. Mortars with low water retentivity on controlled tests have been observed to result in more water-permeable walls. Specify as follows:

"Water retention of mortar shall be determined in accordance with ASTM Specification C91 and shall have a flow after suction of not less than 70% of that immediately after mixing."

If however, close inspection cannot be exercised to incorporate these provisions, the designer should give serious consideration to cavity-wall construction.

*Professional Engineer, Architectural Engineer, Research Section, Veterans' Administration.

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safeguarding Capitol

The letter below, printed by permission of the writer, highlights the present threat to the historic fabric of the U.S. Capitol from zealous Congressmen who must have more restaurant space at any cost. It is not too late for readers who appreciate the 1827 façade to appeal to Congress to "spare that East Front."

C. M.

Honorable Sam Rayburn, Speaker
House of Representatives
House Office Building
Washington, D.C.

Dear Mr. Rayburn: I am taking the liberty of writing you in connection with the proposed demolition of the East Front of the central block of our Nation's Capitol. I am deeply concerned lest that building, which, perhaps in larger degree than any other, stands as a symbol of the integrity and strength of our Government, may have its historic importance jeopardized.

As this part of the façade stands, it is a great original American architectural document, which speaks with honesty and directness about the high architectural quality prevailing in the early days of our young Republic. It offers incontrovertible testimony to the quality of achievement possible at the time our laws were framed and our Nation took form.

Three of our most important architects, historically speaking—Thornton, Latrobe, and Bulfinch—engaged on the design of this part of the Capitol. If we destroy their work, an historical document has been invalidated. The insight that it now gives to the design skill, technical capacity, and methods of workmanship practiced at the end of the 18th Century and the early part of the 19th Century will be destroyed. What replaces it will only have the value of a 20th-Century forgery of an original work.

I realize that a person such as yourself, only too well realizes the great loss that would accrue to the nation if this destruction were permitted. May I respectfully urge that you do all in your power to prevent what future historians and commentators may refer to as an act of thoughtless vandalism.

I realize that a person such as needed in the Capitol, but I do most warmly urge that these facilities be provided in the later 19th-Century parts of the building. The central and immensely important portion of the building under discussion should be allowed no further alteration.

I understand that the American Institute of Architects has offered its services in making a thorough study as to ways in which to provide safely the needed additional space without disturbing the historic façade. I feel confident that they would be zealous and forthright in studying the entire problem.

Happily, the project has not progressed beyond the planning stage at this time. It is not too late to save our making a mistake for which future generations would heavily blame us.

I respectfully urge that no structural changes be permitted in the central part of the East façade at this, or any future, time.

JAMES GROTE VAN DERPOOL, President
Society of Architectural Historians
New York, N.Y.

critique of the month

Dear Editor: The results of the Third Annual P/A Design Awards Program indicate important architectural currents.

The increase of interest in urban development and redevelopment and the quality of the designs commended is very heartening; and this seems to indicate that the efforts of architectural leaders, the architectural schools and professional press

(Continued on page 14)

p/a views

(Continued from page 13)

to emphasize the importance of civic design is beginning to pay dividends.

The designs for specific buildings seem to have encouraging maturity and richness, and it is noteworthy that the awards represent wide geographic coverage.

PROGRESSIVE ARCHITECTURE is to be congratulated for an important program in education on the level of architectural practice.

HARLAN E. MCCLURE
Clemson College
Clemson, S. C.

awards questioned

Dear Editor: When I first picked up the January issue of P/A and looked through it, it wasn't long before I put it down. Now that my first feeling of revulsion has passed I am calmly writing this letter to let you know my reaction to the "Design Awards." I wonder if it was the inability of the Jury to see good design, or if it was because the entries were for the greatest part bad, that such really mediocre designs should even come close to receiving Awards.

Personally, I saw nothing in the submissions, save five of the 49, except dull and unimaginative refinement of conceptions of space and light, which are slowly being wrung dry by small minds. I suppose this is what you meant in your introductory page, "Second, there seems to be a more relaxed attitude toward the handling of contemporary forms than in the past."

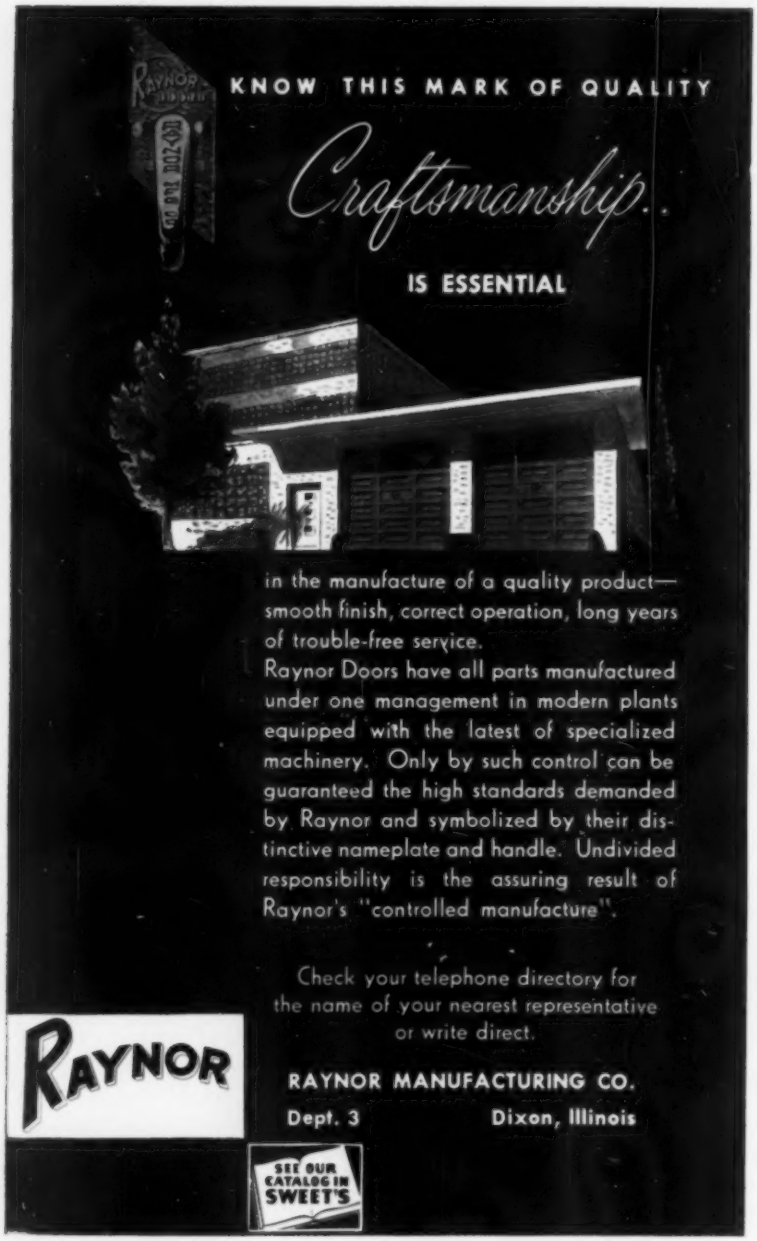
I wonder also, if whoever wrote this page really believed it; or was he trying to say something which would make "everybody happy." I realize that yours is a commercial magazine, and that it must sell to keep going, but anemic writing such as this will, no doubt, do more harm than good.

To make my point I should be more specific in my criticism, but to go through all of this mediocrity would just sicken me. I shall choose a few of the worst. I shall also end with a few good words for the designs which showed some spark of thinking and of life.

I couldn't help but laugh when I saw what won the Education Design Award. The design for the Concordia Senior College for the Lutheran Church is about the worst conglomeration of hack form to be called architecture that I have seen to date. The total lack of any kind of thought is so apparent that it seems a waste of time to even discuss it, but since it was given a Design Award somebody should voice a protest against it happening again.

In your introductory page you wrote, "First, there is an obvious concern . . . for planning and for relationship of the buildings to one

(Continued on page 16)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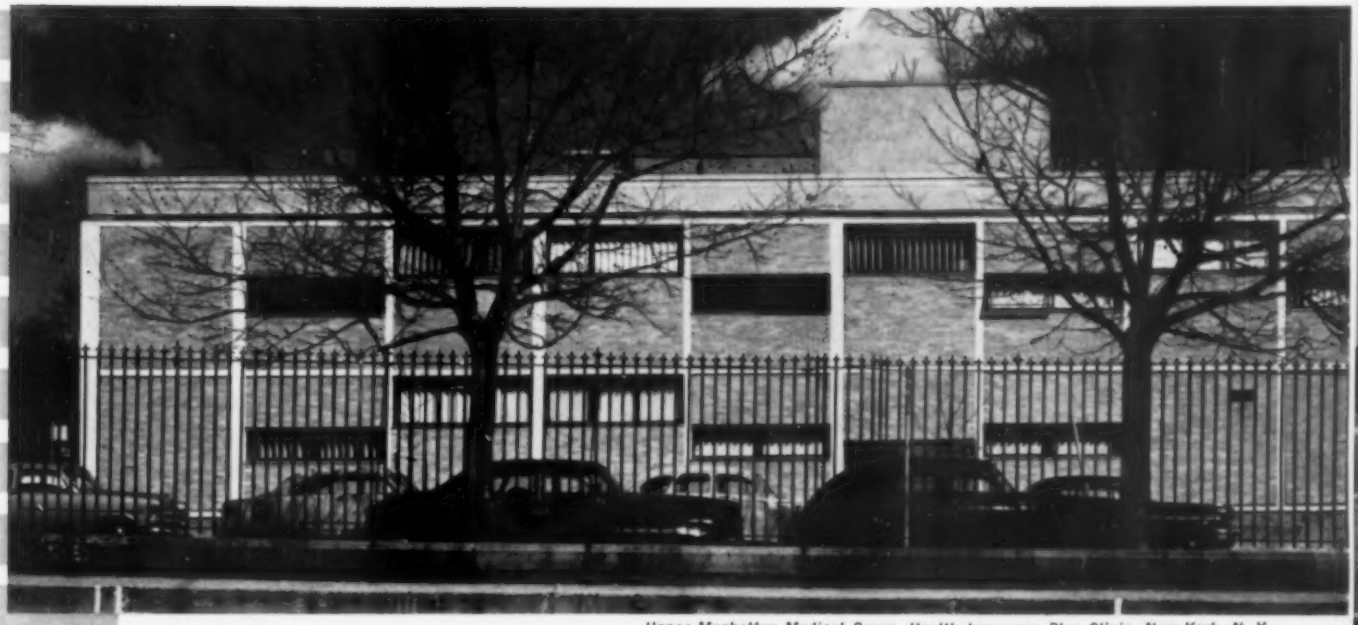

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(Continued from page 14)

another and to the site." If the Concordia Senior College is supposed to have inspired this statement then it is really sad to see how superficial some critics can be.

About the only relation there is between the buildings is the fact that they are all hack variations on the old tent-roof cliché. I can see no real, architectural handling of space; no new thought or vitality. The only semblance to thought was in "aiming" the buildings in one direction, if one can be so liberal as to call that a "semblance of thought."

I think that it is really completely unfortunate that anything like this design, even for a moment, is thought of as architecture.

Another building almost completely lacking in imagination is the office building for William E. Johnston, which was awarded a Design Citation in the Commerce category.

You start one paragraph in the introductory page, "One misses (not too sadly) the accustomed controversies and clichés . . . ," but *does* one? So many of these sadly conceived buildings are rampant with clichés. This office building had the "remarkable element in the design" of stacked terra-cotta flue tile. Absolutely amazing! From now on we shall judge the quality of a piece of architecture on one wall or on one material. It is absolutely fantastic that anyone could think that this stack of flue tile can save this dead and sterile form; a form which is the panacea for those which some people call modern architects, and who in reality are hollow-minded individuals adept at cutting up a magazine; people who have absolutely no conception of scale, space, depth, and a thousand other fundamentals in architectural design.

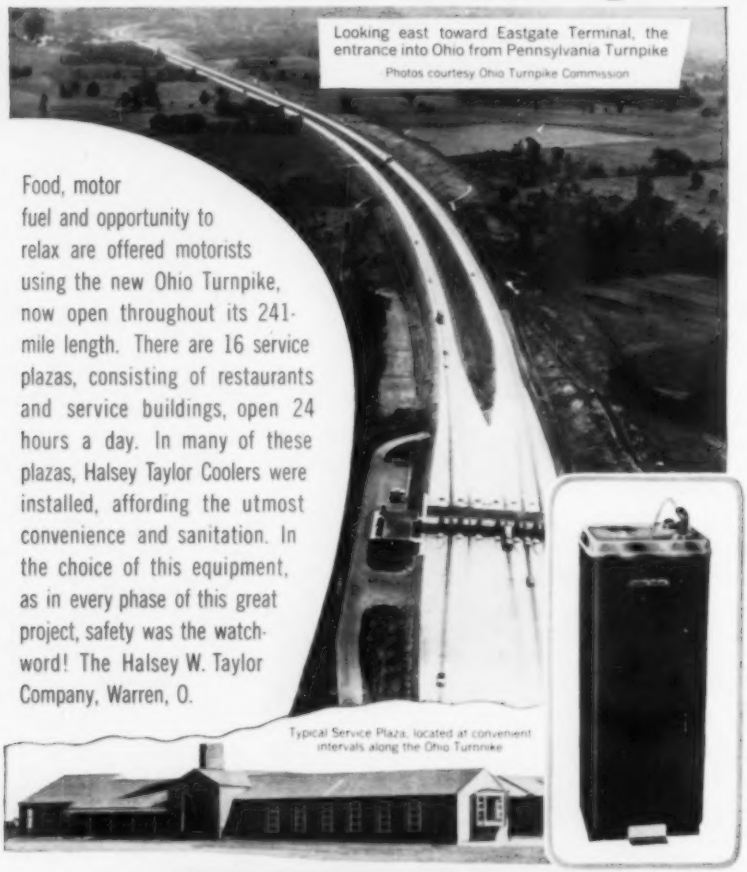
And the designs go on, page after page; the scaleless, ugly department store for Scranton Dry Goods Co., Scranton, Pa. (Award Citation); the medical building for the Peachtree Medical Corporation, Atlanta, Georgia, and its two-dimensional façadism applied on the same cure-all box (Award Citation); the dull and unexciting elementary school, Lowell, Mass.; and so on, and so on.

I think it unfortunate that anything like this can happen. Wouldn't it be better if the prizewinners were to number only four or five, with no categories? With all these categories it seems that the Jury is pressured, consciously or subconsciously, into awarding something in a category even where there is a complete lack of ability or of architectural worth.

Happily, the Design Award Program is not a complete failure. As I mentioned before, there were five submissions which had a breath of life in them and a spark which placed them head and shoulders above the rest.

(Continued on page 19)

On the new Ohio Turnpike



Looking east toward Eastgate Terminal, the entrance into Ohio from Pennsylvania Turnpike

Photos courtesy Ohio Turnpike Commission

Food, motor fuel and opportunity to relax are offered motorists using the new Ohio Turnpike, now open throughout its 241-mile length. There are 16 service plazas, consisting of restaurants and service buildings, open 24 hours a day. In many of these plazas, Halsey Taylor Coolers were installed, affording the utmost convenience and sanitation. In the choice of this equipment, as in every phase of this great project, safety was the watchword! The Halsey W. Taylor Company, Warren, O.

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The first of these submissions was the Campbell & Wong vacation camp for Douglas Fir Plywood (Design Award). Though lacking a little in scale, the whole conception was refreshing. The plan shows mature thought and real freedom of expression. We see here a search for a new dimension and a new esthetic. Space begins to achieve reality. It has become a wonderful tool in the Architect's hand. It is not ignored or accidental.

The second submission worthy of mention (Award Citation with Commendation) is the house by Robert Geddes & Melvin Brecher. Again we see some thought and imagination. The structure is clear, but it does not become overemphasized, and "all" in the design. The plan shows a certain feeling for space which is good, but still, it could go further. Here again is a search for form; for a new expression of architectural fundamentals.

The third building is the First Lutheran Church (Award Citation) by Jyring & Whiteman (L. E. Stegner, Designer). We see a little excitement in the undulating roof over the nave; a very nice structure, not self-conscious or strained. The unfortunate design of the open, screen walls, with its clichéd divisions, detracts very much form what could be called a very nicely unified conception.

The fourth building that appeals to me is St. Matthew's Episcopal Church and Parish School (Award Citation) by A. Quincy Jones & Frederick E. Emmons. The plan shows some evidence of thought and vitality. Because of the poor presentation though, it is very hard to really evaluate this building. It would be unfair to say more about it. At least, it is an attempt toward real architecture.

The fifth and last entry which appealed to me is not a building, but an aircraft hangar; the Prototype Aircraft Hangar by Richard T. Acott (Award Citation). It is a pregnant idea full of possibilities. Again we can see the result of some serious thought and applied thinking. It is very refreshing.

I hope that what I have said is clear and understandable. If we are to award Citations, etc., let's award them to structures which merit these Awards. Let's broaden our conception of architecture and take it out of the realm of the two-dimensional mediocrity and refinement.

Architecture is a fine art; the mother art; something sacred, if

(Continued from page 16)

you please. Let us recognize it as such, and apply this term to buildings which fit its definition. Let us foster thought, not shallow copying; vitality, not anemia; Architecture, and not a reflection of small minds.

THAD. E. KUSMIERSKI
Norman, Okla.

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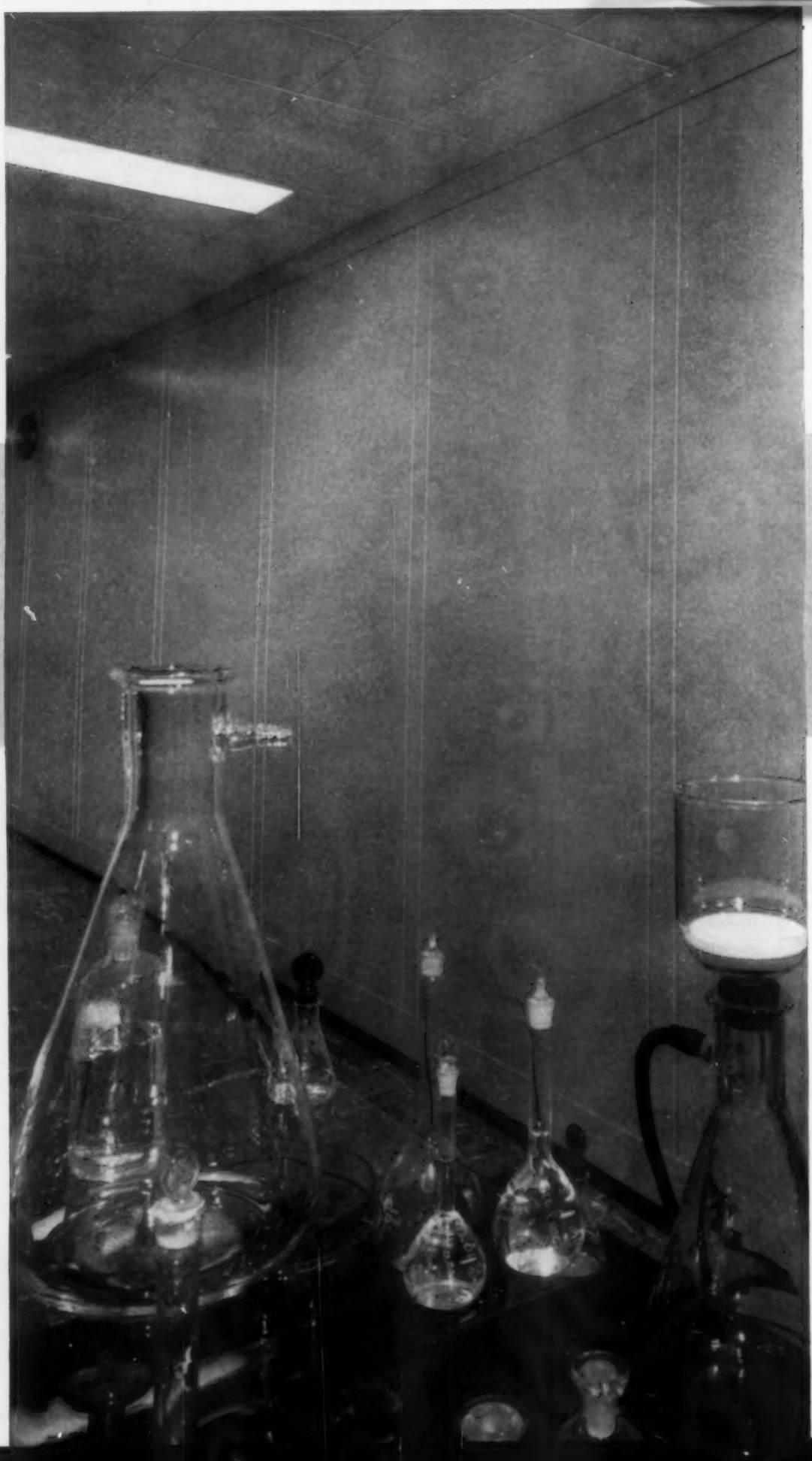

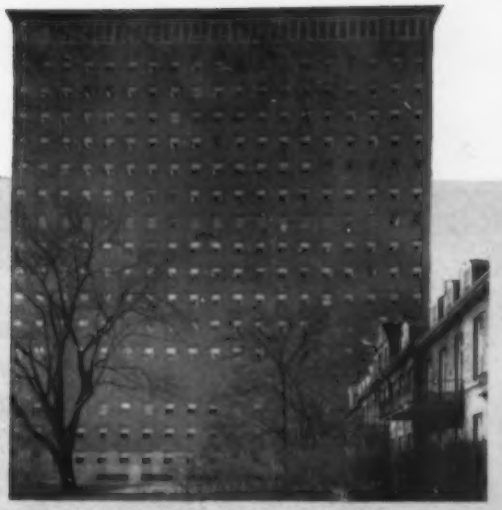

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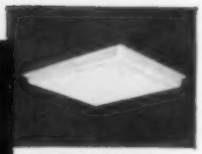

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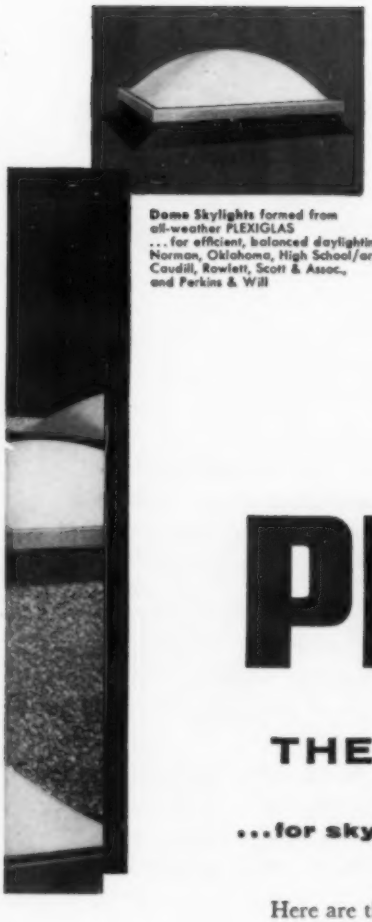

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... it is an outdoor plastic with time-proved resistance to weather
... PLEXIGLAS transmits and diffuses light with highest efficiency
... in transparent form, it has optical-grade clarity

Building products and custom installations based on the use of PLEXIGLAS are currently satisfying the most rigid requirements of architects and their clients. We will be glad to send you the names of sources of supply for products that incorporate PLEXIGLAS, and the names of sign companies experienced in its use.

Internally-lighted Signs of PLEXIGLAS ... for fresh, attractive identification with lasting beauty and long-range legibility Gimbels-Cheltenham Store, Philadelphia/architects: Walton Beckett & Associates and Howell Lewis Shay

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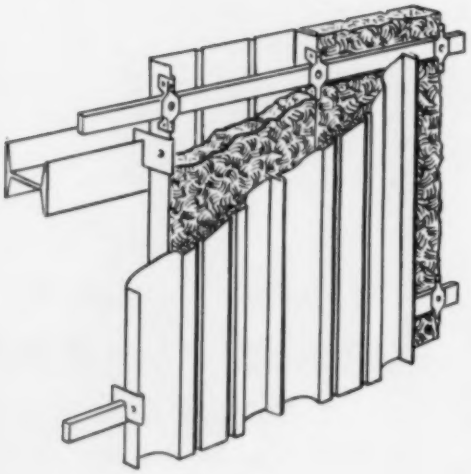
Canadian Distributor: *Crystal Glass & Plastics, Ltd., 130 Queen's Quay at Jarvis Street, Toronto, Ontario, Canada.*

For rapid construction specify NEW

The addition of new curtain walls to the Stran-Steel architectural line enables you to combine structural soundness with a fresh, attractive appearance.

Exclusive *Stran-Satin* finish, developed by National Steel especially for the new Stran-Steel curtain wall, combines satin-smooth finish free of spangled patterns with the extra protection of a non-corrosive zinc coating. *Stran-Satin* panels give you the low cost and extra strength of steel plus the eye appeal of far more expensive materials.

Stran-Steel curtain wall panel offers these advantages . . .



Light framework—Because of the light weight per square foot, steel framework can also be lighter in weight—a significant cost-cutting factor.

Fast, easy to assemble—Panels are tailored to fit individual design. Sections of 18-gauge steel (or lighter), available in lengths up to 52 ft., can be assembled entirely without screws, bolts or welding. Thus a building can be enclosed as soon as framework is erected . . . and interior finishing and equipment installation can begin before exterior is complete.

Less heat loss—Offset construction cuts metal-to-metal contact, offers minimum conductivity.

Complete wall insulation—Sections are designed for 1½-in. batt-type insulation. With a "U" factor of 0.14, this panel has the insulating efficiency of a conventional 16″ masonry wall.

Attractive appearance—Vertical grooves create clean, pleasing appearance, increase rigidity, and provide for expansion and contraction. The *Stran-Satin* finish combines proven corrosion resistance with a highly decorative appearance.

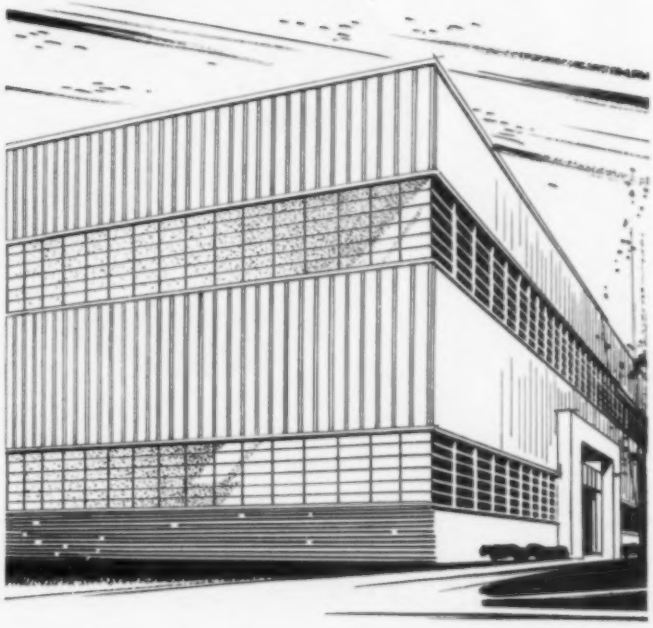
EXTERIOR SHEET

INTERIOR SHEET

COMPLETE CURTAIN WALL

plus eye appeal . . .

STRAN-STEEL CURTAIN WALL



The curtain wall offers a modern method of wall or fascia construction that is equally well suited for industrial, commercial, recreational, hospital or other public buildings.

Stran-Steel now offers a complete structural system with fully integrated components—joists, studs, channels, columns, beams, galvanized or painted ribbed decking, and the new curtain wall panels. This complete system is designed for durable, fire-safe, industrial buildings, schools, institutions, apartments, and shopping centers.

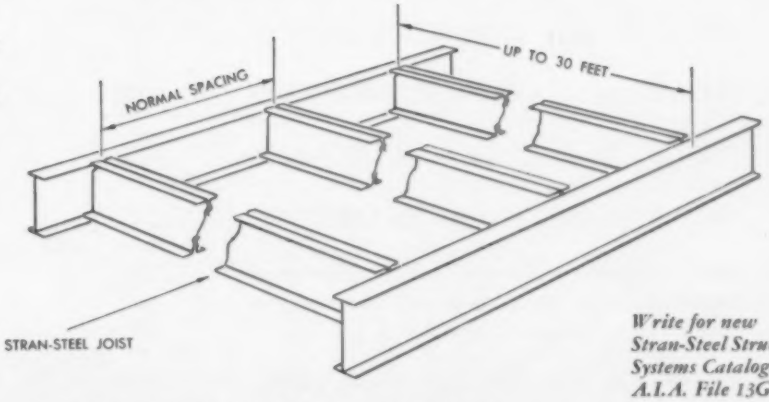
New Stran-Steel 10″ and 12″ nailable steel joists span wider distances

Cost-saving nailing groove cuts material and labor expenses.

Available in 14-, 13-, 12-gauge cold rolled sheet.

Flange widths:
10″ joist: 2″, 2½″, 2¾″, 3″
12″ joist: 2½″, 2¾″, 3″

Lengths:
11 to 30 feet.



Write for new Stran-Steel Structural Systems Catalog, A.I.A. File 13G

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56-SS-14A

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NO. 2 . . . . . *becomes* **STANDARD** — MILL 750 WC LB STAND

NO. 3 . . . . . *becomes* **UTILITY** — MILL 750 WC LB UTIL

NO. 4 . . . . . *becomes* **ECONOMY** — Not Customarily Grade Stamped

There is no change in the identification of Select Merchantable Boards, Select Structural Dimension and Timbers, or vertical grain Clears.

The top grade of flat grain Clears becomes **C&Btr.** — MILL 750 WC LB C&BTR

For additional information on grades write to:

WEST COAST LUMBERMEN'S ASSOCIATION
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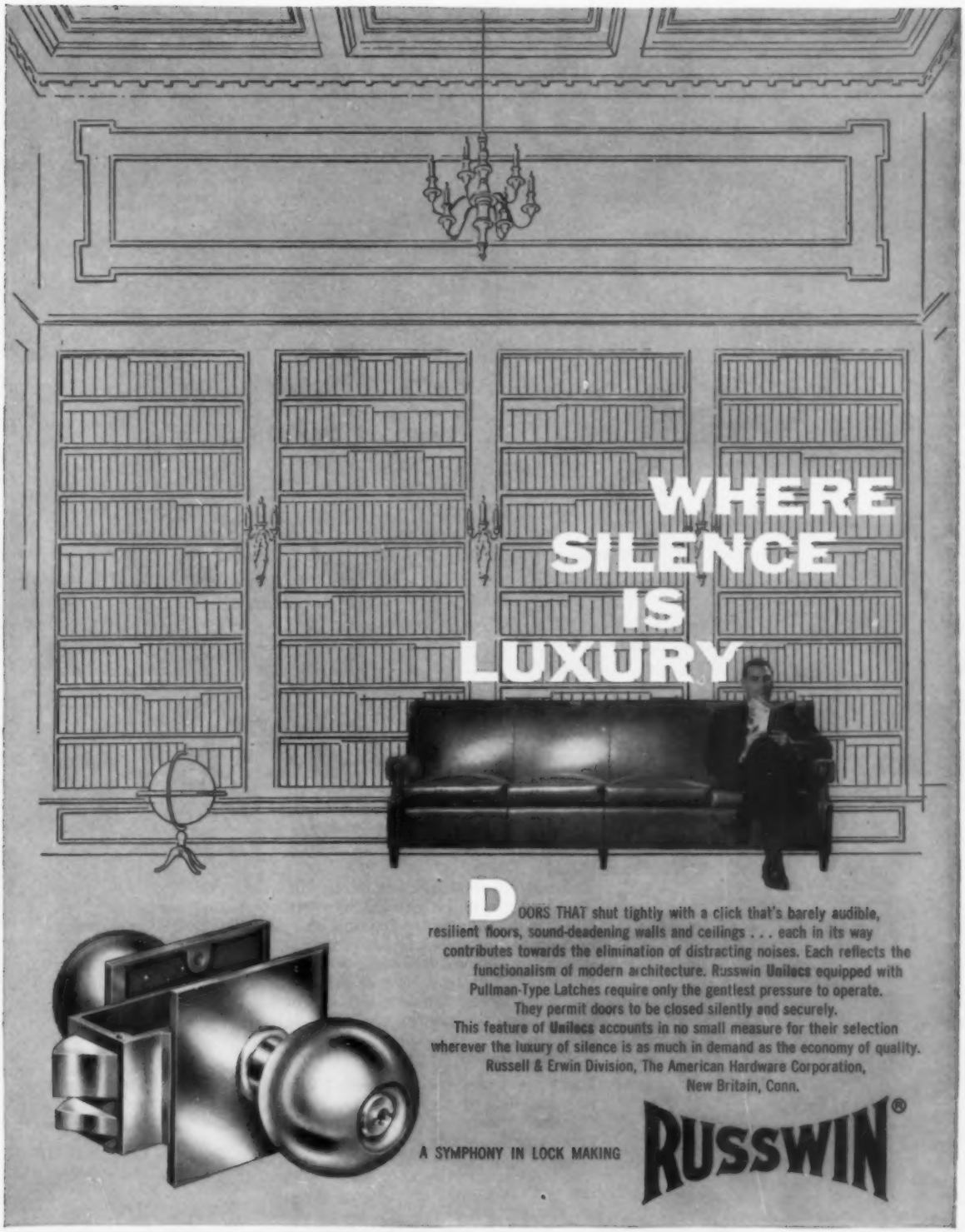
All Grade Stamps shown are registered, U. S. Patent Office.



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This feature of **Unilocs** accounts in no small measure for their selection wherever the luxury of silence is as much in demand as the economy of quality.

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"400" Closers

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OWNER AND BUILDER: *Tishman Realty and Construction Co., Inc. New York and Los Angeles*
ARCHITECT: *Victor Gruen, A.I.A., Los Angeles, New York and Detroit*

serving the architect, and owner-builder
with metal wall engineering and production quality

This new 13-story office building will be completely air-conditioned. To admit maximum natural light without the discomfort of glare and direct sunlight, the building has been designed with projecting horizontal sunshades on the south and north elevation, and vertical louvers on the east and west elevation. The complete aluminum wall framing and vertical louvers will be Kawneer engineered and produced, saving the architect and builder months of time and giving them the assurance of client satisfaction. Special Kawneer weather-tightness plus expansion and contraction features will be included.

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Write for folder describing Kawneer services and metal wall jobs.

50TH ANNIVERSARY
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ARCHITECTURAL PRODUCTS DIVISION
1906–1956

Cincinnati Public Library

Architects: WOODIE GARBER & ASSOCIATES
Associated Architects: SAMUEL HANNAFORD & SONS
Mechanical Engineers: WM. E. BODENSTEIN & W. W. SHUSTER
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Is Assured by **POWERS** *Year 'round Air Conditioning Control System*

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Some of the Library's many features are: a children's room with child's size furniture, also a story hour room; film and recording center; a rare book room and director's room with stainless steel operable louvers on the exterior; rooftop terrace with planting boxes and reflecting pools; ground floor has a garden, pool and parking lot.

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Consult Powers on your temperature and humidity control problems. Experience gained here and in thousands of other significant buildings may be helpful to you.

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Another installation of Chase® Copper Base Flashing Expansion Joint!

More than 1600 feet of Chase Copper Base Flashing went into this new Ford Motor Company building, protecting the vital juncture where the flat, built-up roof meets vertical masonry walls.

A solid copper perimeter flashes the base, and though every seam is soldered, the unique Chase Copper Base Flashing Expansion Joint will allow for expansion and contraction of the metal!

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Ceco Curtainwalls Offer Architects Opportunity to Design Individuality into Whole Business Areas or Single Structures

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Shopping centers—retail stores—achieve a pleasing appearance through the color of Ceco Curtainwalls made of aluminum or steel windows and insulated panels . . . erection time is speeded . . . dead-weight is cut.

Buildings radiate a clean, colorful, fresh look with Ceco Curtainwalls. Used with originality, they can symbolize the trademark of the creative designer . . . bring a look of the future to business communities.

Office buildings offer opportunity for individuality when built with Ceco Curtainwalls. Here is the Meramec Building, Clayton, Missouri. Benjamin Shapiro & Robert Tisdale, architects. Manuel Lasky, owner.

made possible by a "skin" of windows and panels. Erection time is speeded . . . dead-weight is cut . . . by this modern method of enclosing structures. If you want to put individuality into the buildings you design, so they bear the mark of your creation, you have a new medium in Ceco Curtainwall Construction. Ceco Engineers can help you in the planning stage with data concerning such important subjects as practical application, load transfer, anchoring and cleaning. So won't you call us?

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Sculptured polychrome Architectural Terra Cotta in units 2" thick were specified for this attractive entrance. Background is oyster white. Decoration is silver gray.

makes a colorful entrance

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floors that look like cork . .

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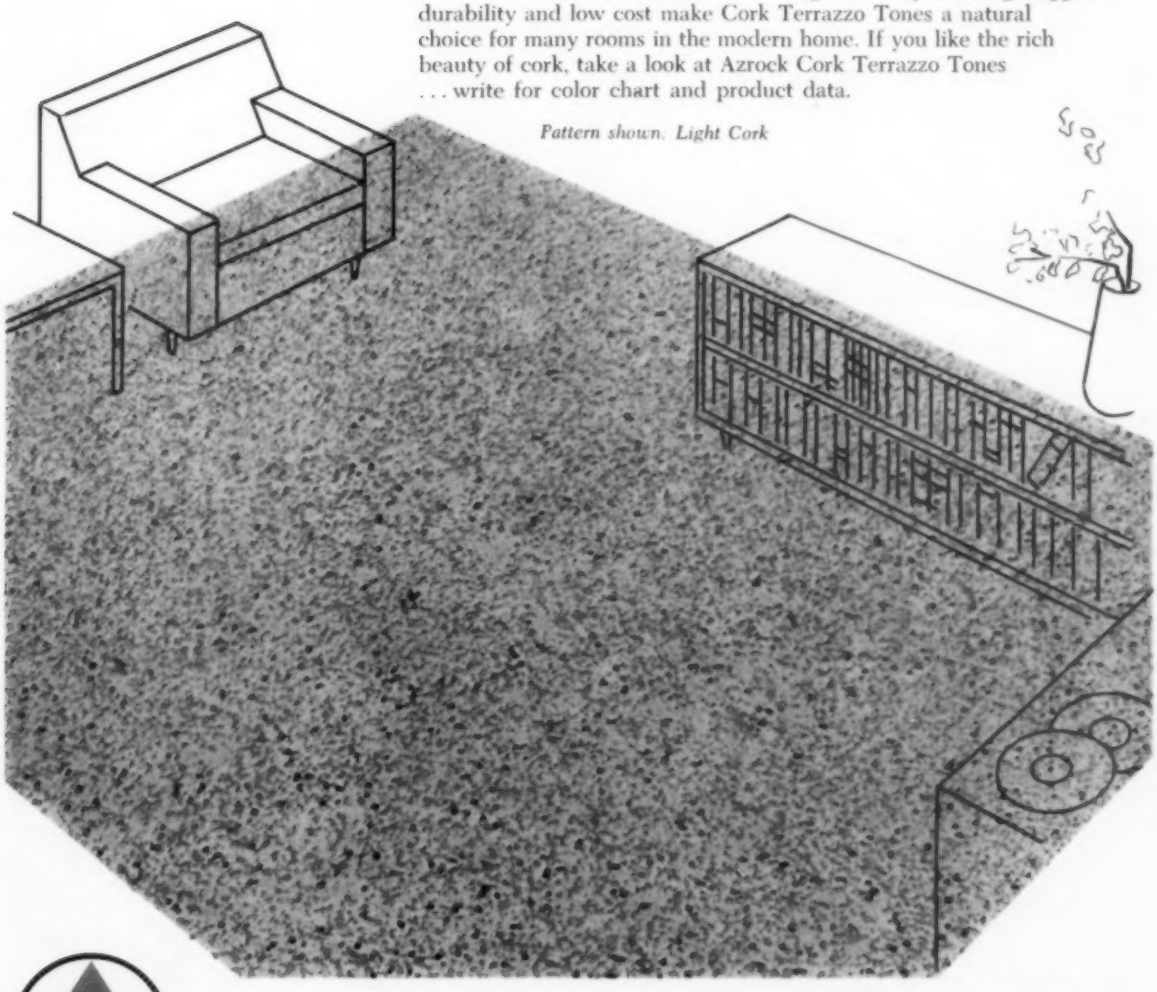
This luxurious-looking asphalt tile can be quickly and safely installed on concrete slabs on or below grade. Easy cleaning, rugged durability and low cost make Cork Terrazzo Tones a natural choice for many rooms in the modern home. If you like the rich beauty of cork, take a look at Azrock Cork Terrazzo Tones . . . write for color chart and product data.

Pattern shown. Light Cork



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Note how attractive, light diffusing, Mississippi Glass partitions this room into cheerful, bright cubicles, yet avoids the cell-like atmosphere of conventional materials. Employees work better, see better in modern surroundings of beautiful glass whose rhythmic patterns never go out of style. Interiors are bright with copious quantities of softened, "borrowed light"... always look new with these practical walls that never require painting, wipe shining clean with a damp cloth, can always be moved for future needs.

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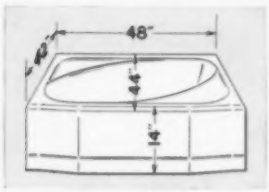
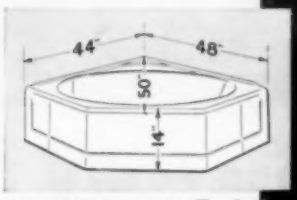
WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

(At the right) COSMOPOLITAN, recess. Sizes 4½′, 5′ and 5½′.

MAYFLOWER, recess. Integral seats. All parts can be reached for cleaning.





MAYFLOWER, corner. Fresh individuality of design; solves space problems.

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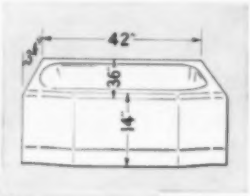

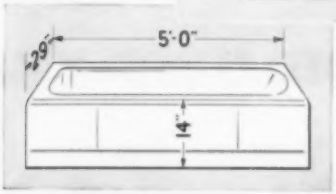

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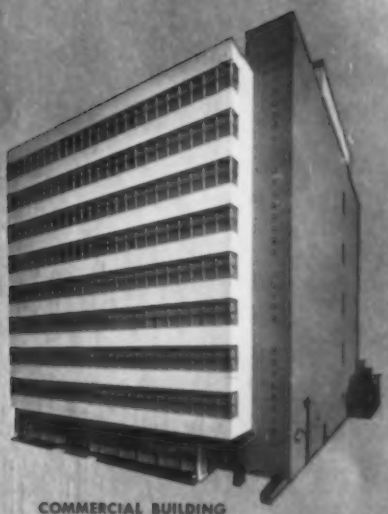
Architects: Wilton Smith & John G. Minten
Contractor: Ira H. Larson Co.

SCHOOL
New Woodward High School, Cincinnati, Ohio
Architect: Charles Frederick Cellarius
Contractor: Frank Messer & Sons



COMMERCIAL BUILDING
Jefferson Standard Life Building, Charlotte, N. C.
Architect: J. N. Pease & Son
Contractor: Southeastern Construction Co.

ALUMINUM WINDOWS KEEP MAINTENANCE EXPENSE AT A MINIMUM

If you're interested in keeping maintenance expense at a minimum you can profit from the experience of many schools (like the one pictured on the opposite page), hospitals and other buildings erected 15 to 25 years ago with aluminum windows.

School officials, hospital superintendents and others responsible for the maintenance of these buildings are unanimous in their praise of the aluminum windows. They all report that not one penny of expense has ever been required for painting them.

Now, just think what this means to the annual school budget. Think of the money that will be saved—extra money that can be well used for salaries, for books and for other necessary items. Certainly, the selection of aluminum windows for any type building is a wise choice that will pay handsome dividends.

As you plan new schools, hospitals, apartments or commercial buildings be sure you, too, include "Quality-Approved" aluminum windows. They are the only practical, reasonably-priced windows that *never* require painting... that cannot rust or rot, warp or swell... that retain their trim, modern looking appearance for the life of the building.

"Quality-Approved" aluminum windows are available in all types—double-hung, casement, awning, projected, sliding and jalousies—to fit any exterior design.

They are made by many manufacturers (see list below) to rigid quality standards established by the Aluminum Window Manufacturers Association. For your protection and complete satisfaction be sure to insist on the "Quality-Approved" Seal when you specify or OK specifications for aluminum windows.

A WORD OF CAUTION—Remember that only aluminum is rustproof through and through. Mere surface protection against rust is not enough. Wear, unintentional scratches in delivery or installation may nullify any protective coating and soon require painting.

For additional information consult Sweet's (Architectural File, Section 16a/ALU) or any of the approved manufacturers listed below, or write for our latest "Window Specification Book". Address, Dept. PA-564.

Aluminum Window Manufacturers Association

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FOR FLOORS AND WALLS

Packed 3 ways: light, medium, dark

- Only Kencork gives you this choice of light natural baked cork shades . . . no harsh contrasts.
- Now you can specify especially selected all light, all medium or all dark random floors or mix and blend any of the three shades for fuller randoms with the new, wanted light-tone look.
- Kencork is now available in new economical 1/8" thickness.
- Kencork now has greater flexibility, is ideal over wood floors.
- New plastic-fortified factory finish gives Kencork a more durable finish that is easier to clean.
- Sizes: 6" x 12", 9" x 9", 12" x 12" and 12" x 24". Square edges. Natural or factory finish.
- Thicknesses: 1/8", 3/16", 5/16" and 1/2".
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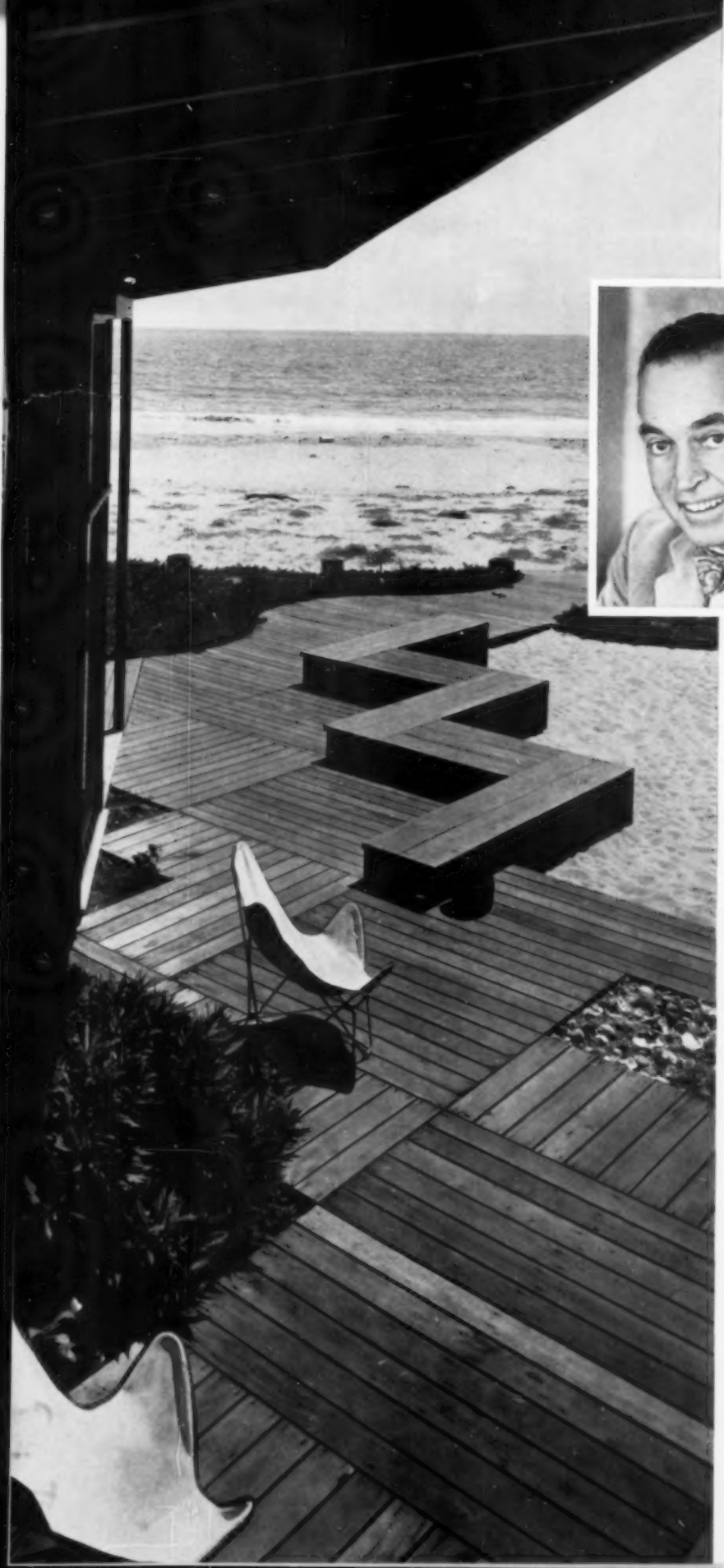

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leading landscape architect for over twenty years, has done outstanding work for private estates and subdivisions, hotels and schools, industrial plants and government agencies, both here and abroad. Well known for his articles in *House Beautiful*, he is also the author of the new best-selling book, *Gardens are for People.*

Of Garden Redwood, Mr. Church says..."Used alone or in combination with other materials, redwood is one of my most versatile materials. By specifying the correct grade of CRA redwood, I can obtain the effect I want, every time."

Gardens are for people...just as houses are...and they should receive the same careful planning and material specifications as architectural structures. For design ideas, construction details, and data on Garden Redwood grades, write on your letterhead for our Landscape Architect's File.

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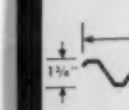
This famous protected-metal roofing and siding will now add permanent low-cost beauty to your buildings!

After decades of research and more than seven years of exhaustive tests held under the auspices of its multiple fellowship at the famed Mellon Institute of Industrial Research, H. H. Robertson Company is proud to announce Galbestos roofing and siding in four attractive new colors—red, green, buff, gray. Standard Galbestos with its black or maroon surface has long been the standard of perfection among protected metal products for its long-life, resistance to fire and corrosion, and ability to withstand extreme weather conditions. Color Galbestos has proven itself equal or better in every respect.

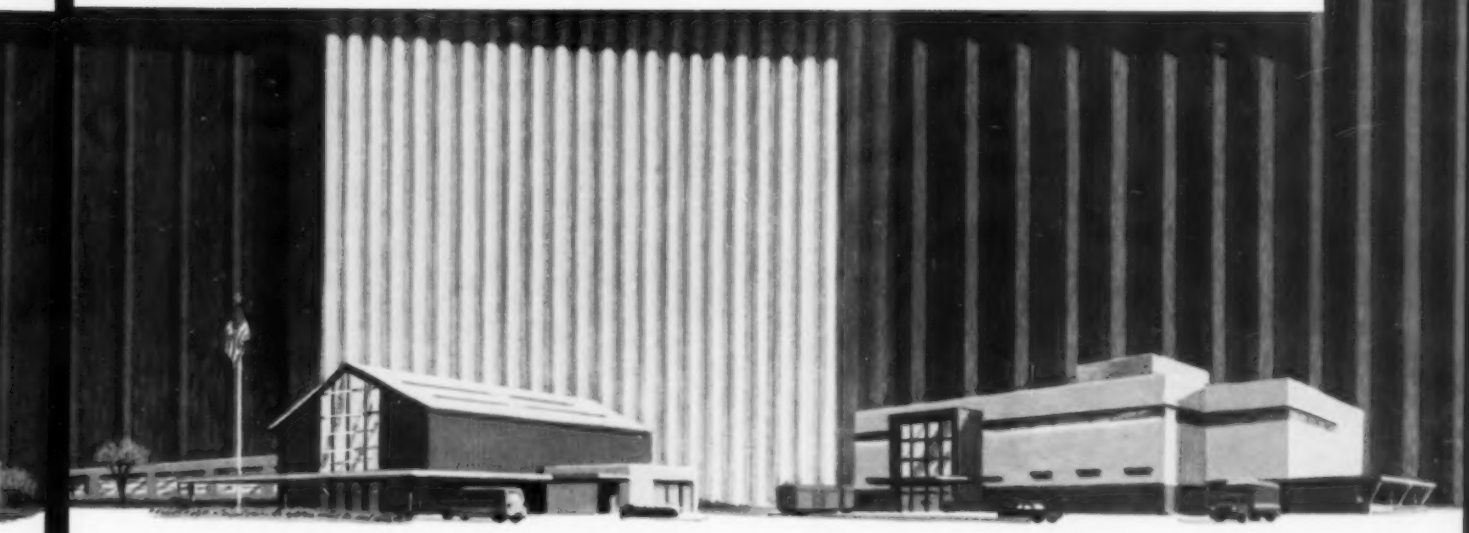
Because the surface of Color Galbestos is permanent and maintenance-free, you can now specify colored roofs and sidewalls at a much lower cost than that possible by any other means. With the new colors and the three standard corrugations shown at the right, used singly or in combination, a whole new field of decorative treatment for industrial and commercial structures has been opened. Use the coupon on the opposite page to write for literature.

Pioneering in World-Wide Building Service Since 1906



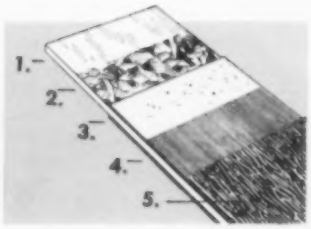
Typical installation of an Anemostat High Velocity Under-the-Window unit in a classroom.

Color Galbestos



The exclusive Galbestos method of protecting steel is responsible for its extreme durability. First the steel core (1) is pickled and dipped in a bath of molten zinc. (2) Immediately a layer of asbestos felt (3) is pressed on so that when the zinc hardens, the asbestos fibers are gripped in absolute metallic bond. Next, the asbestos is impregnated with an asphaltic compound (4), and a tough, waterproof coating (5), in one of the six Galbestos colors is applied to the surface. You can be assured that freedom from maintenance has been built-in when you specify Galbestos.

Color Galbestos can be furnished colored on one or both sides . . . in flat sheets or in corrugations shown below.

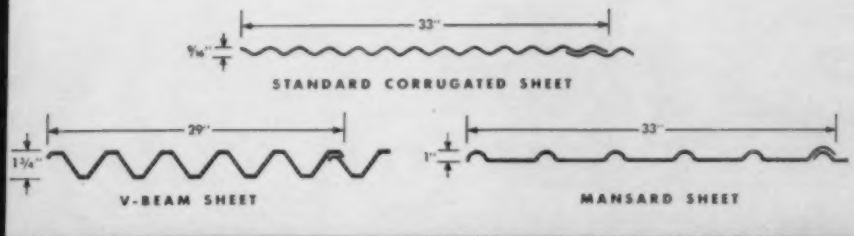


Robertson

GALBESTOS

H. H. Robertson Company

2405 FARMERS BANK BUILDING
PITTSBURGH 22, PENNSYLVANIA

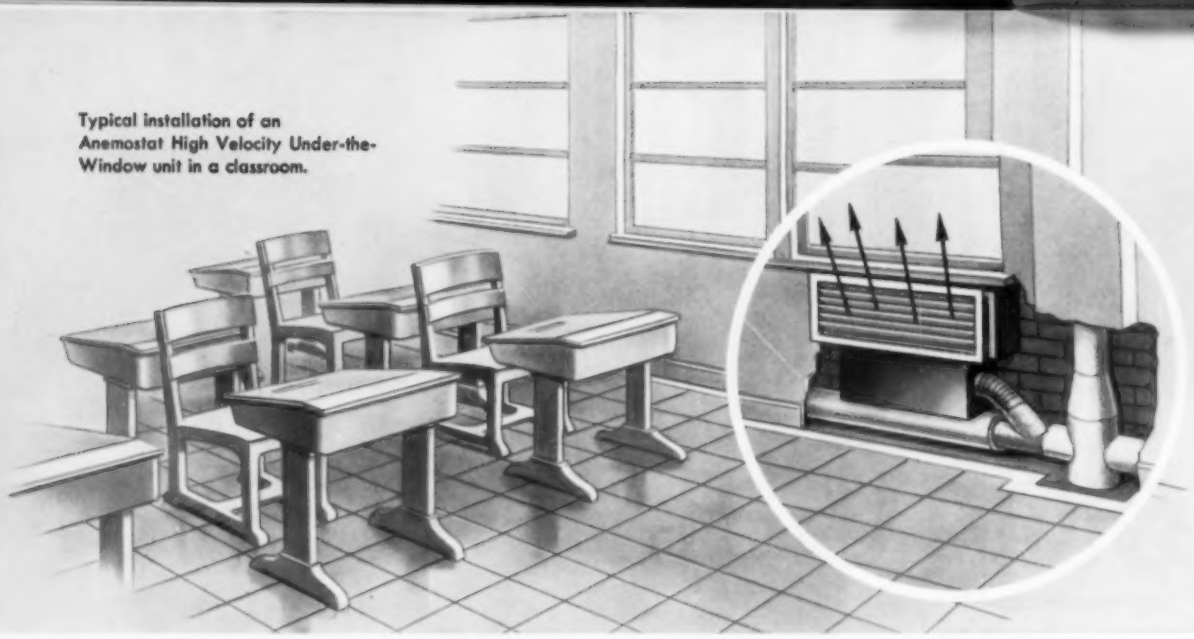


Please send additional information on Color Galbestos.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____ CITY _____



Typical installation of an Anemostat High Velocity Under-the-Window unit in a classroom.

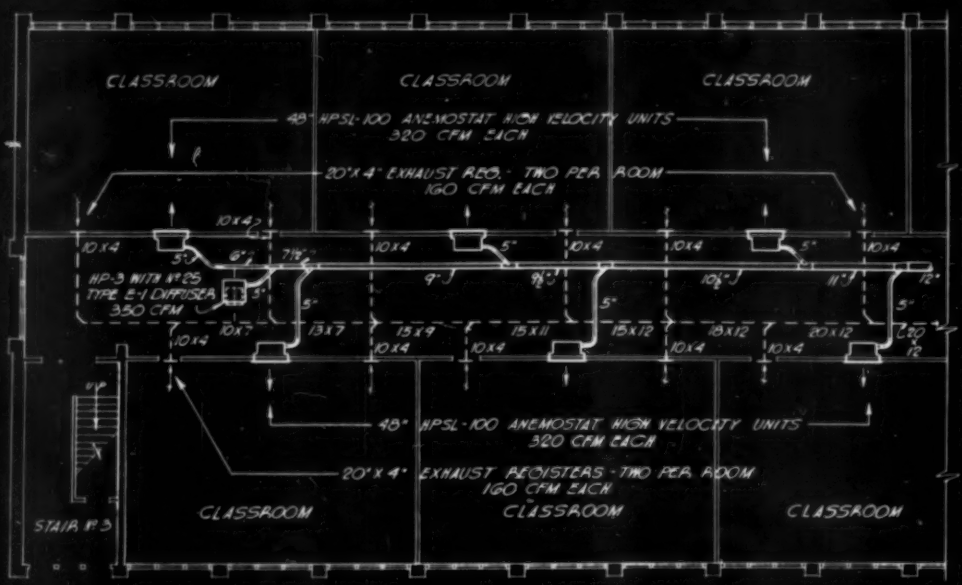
How to deliver
high velocity air to schoolrooms

Shown here are two ways of using the Anemostat All-Air High Velocity system of draftless air distribution for heating and ventilating schools. Under-the-Window units (above) are the most practical for colder climates. Corridor distribution (below) is preferable in warmer climates.

Advantages:

- All-Air High Velocity units require smaller than conventional ducts, thus save space and money.
- All-Air HV units can be used for individual or zone control, in single or dual duct installation.
- Since air is supplied from the main equipment room, there is no need to break through the outside of the building for prime air make-up. This eliminates grilles, dampers, possibility of leaks.
- The Anemostat All-Air HV system can be simply installed by the sheet metal trades. No supply or return pipes are required. Units are quiet, need a minimum of maintenance from custodians.

For latest data on All-Air High Velocity units, write on your business letterhead for new Selection Manual 50 to Anemostat Corporation of America, 10 E. 39 Street, New York 16, N. Y.



Diagrammatic layout shows corridor distribution of high velocity air for wing of school.

Even on a cloudy day

your school can be a brighter place!

Even on this misty dim day, daylight fills the room. And the view brings in a feeling of freedom.

44 out of 45 teachers surveyed in a research project say that "daylight wall" type classrooms have educational merit. Here are two typical comments:

"Students do not get tired and restless, because there is no feeling of confinement."

"The lighter, brighter surroundings create a good environment for learning."

Send for *your* copy of the complete research report by Paul R. Hensarling, Director of Administrative Research and School-Community Relations for the Port Arthur, Texas, Independent School District.

Read the column at the right for full information on L·O·F Daylight Walls. For immediate cost estimates, etc., call your Libbey·Owens·Ford Glass Distributor or Dealer (listed under "Glass" in your phone book).

Daylight Wall Facts

With L·O·F Daylight Walls there is less wall area to paint and maintain. Construction costs are lower. Artificial lighting isn't needed so often. In cold climates, you can cut heating costs by using Daylight Walls of *Thermopane*® insulating glass.

Technical Information

Natural daylight is the primary source of light for the classroom. Because daylight often varies greatly from hour to hour and day to day, the problem is to get *enough* light on the dull days and provide flexibility of *control* with simple blinds or shades. The cloudiest weather occurs during the school year, so windows should be designed to admit the most light possible on the dullest day. The clear glass in a Daylight Wall transmits from 83% to 89% of the light—more than any other form of glass.

The following minimum light levels should be maintained:

	Foot-candles
Classrooms—on desks and chalk boards	30
Study halls, lecture rooms, art rooms, offices, libraries, shops, laboratories	30
Classrooms for pupils who partially see and those requiring lip reading—on desks and chalk boards	5\
Drafting rooms, typing rooms and sewing rooms	50
Reception rooms, gymnasiums and swimming pools	20
Auditoriums (not used for study), cafeterias, locker rooms, washrooms, corridors containing lockers, stairways	10
Open corridors and storerooms	5

For complete information on how to get the best lighting, how to arrange desks for maximum light, how to decorate for best results, how buildings should be oriented, etc., mail the coupon. We'll send you a free copy of our full-color booklet "How to Get Nature-Quality Light for School Children". ®

Dept. 4546
Libbey-Owens-Ford Glass Company
608 Madison Avenue, Toledo 3, O.

Send me Daylight Walls booklet M-12 and a copy of the Hensarling Report.

Name_____

Address_____

City_____ Zone____ State____

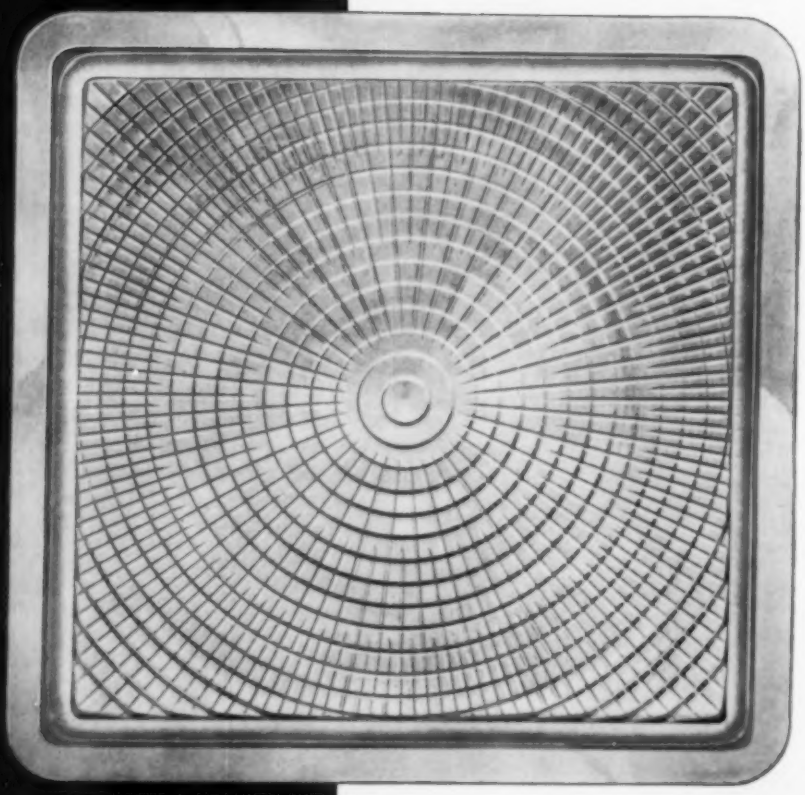
L·O·F GLASS

DAYLIGHT WALLS

LIBBEY • OWENS • FORD • *a Great Name in Glass*

amcolens

the most exciting lens development in incandescent lighting



THE ART METAL COMPANY

CLEVELAND 3, OHIO

amcolens in industry

Designers of incandescent lighting for modern offices and executive suites have discovered a new tool, the Art Metal AMCOLENS. The AMCOLENS makes it possible to design incomparable efficiency as well as contemporary beauty into lighting systems. Installed in Art Metal recessed eliptisquares, AMCOLENS builds prestige among customers and employees. For dramatic, advanced lighting for conference rooms, lobbies, alcoves, reception rooms, lounges, offices and laboratories, AMCOLENSES are your contemporary keys to better lighting designs.

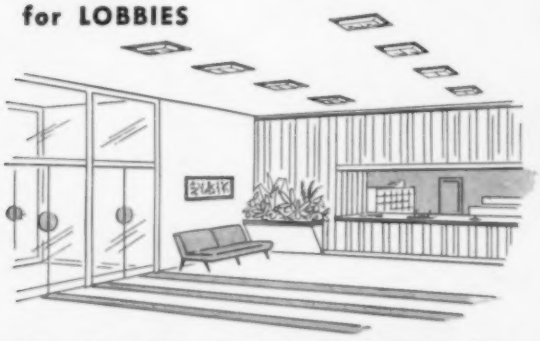
for OFFICES

AMCOLENS creates a cheerful office environment where employees enjoy working. Warm, colorful light is multiplied and directed to desks and cabinets by clear glass prisms, the most exact means known to science for controlling the direction of light.

for CONFERENCE ROOMS

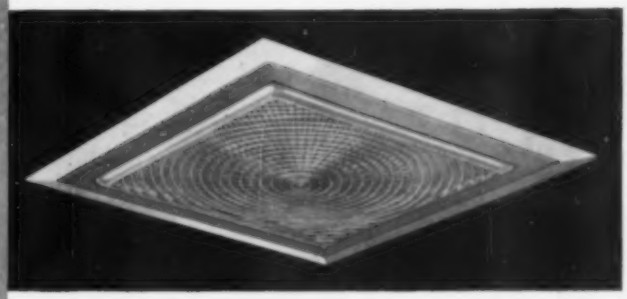
Handsome, deep AMCOLENSES provide diffused shadowless illumination and blend with the overall color scheme.

for LOBBIES

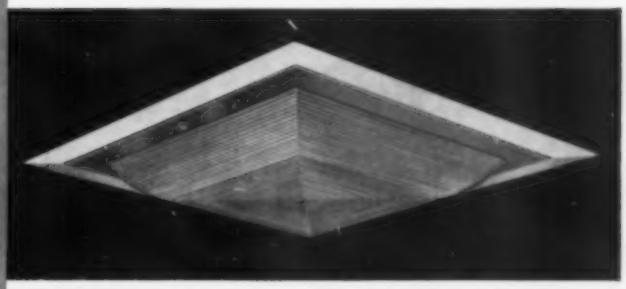


The rich subtle effect of the two-light deep AMCOLENS enhances the decor of any business gathering place. In terms of lighting efficiency and practicality, clear prismatic AMCOLENS has no equal.

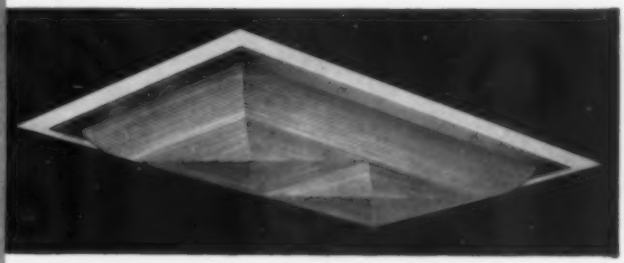
TYPES of recessed ELIPTISQUARES



Recessed Flush Eliptisquare—Four eliptisquare sizes accommodate 6½", 8½", 10⅜" and 12" AMCOLENSES. The eliptisquare reflector multiplies light output.



Deep Eliptisquare—Three sizes utilize 8½", 10⅜" and 12" AMCOLENSES.



Two Light Eliptisquare—Accommodates one 9½" x 16½" AMCOLENS which incorporates two symmetric lens elements each with its own lamp and eliptisquare reflector. All eliptisquare units have separate hinged doors which rotate open on two spring pin hinges.

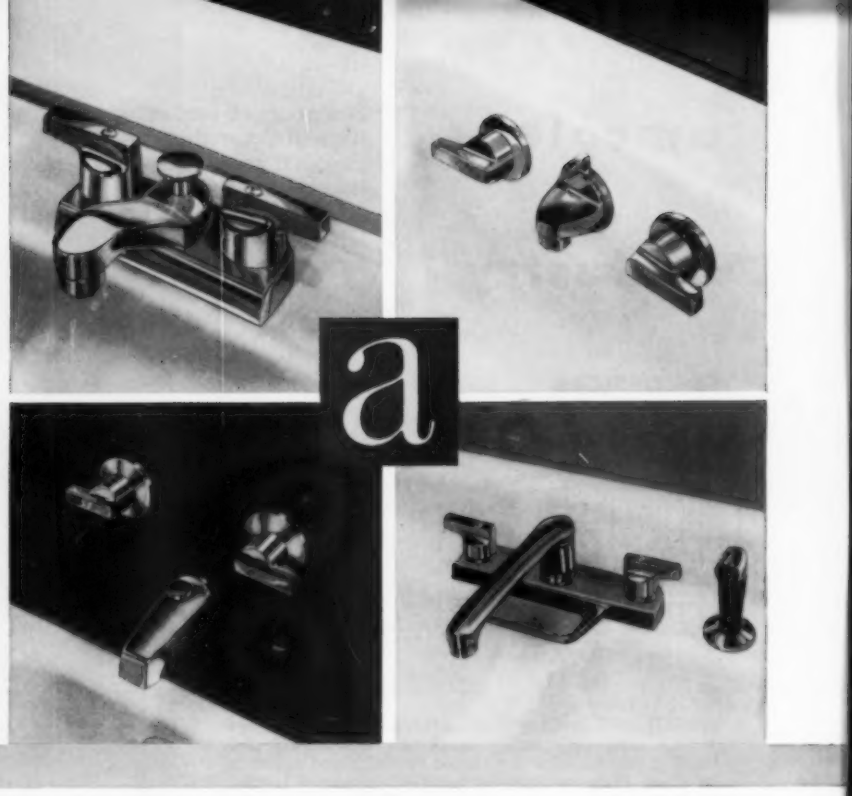
AMCOLENSES ARE ANOTHER *Lighting Research* DEVELOPMENT OF ART METAL

THE **ART METAL** COMPANY

CLEVELAND 3, OHIO

a **New Quality Line.** Here are smart, new fittings for the bath, lavatory and kitchen . . . in center-set and spread styles. They're designed to complement the modern lines of American-Standard plumbing fixtures, and will give long, dependable service. All Quality Line fittings are finished in gleaming Chromard for permanent beauty and easy cleaning.

b **New Monogram Fittings.** These luxurious fittings have a rich satin chrome finish, and can be personalized with the owner's initials. Distinctive Monogram fittings are available with clear or colored non-slip handles to blend with the bathroom color scheme.



Picture studies in function and

c **Combination Lavatory and Vanity Shelf.** This smart-looking one-piece Guestledge lavatory-counter combination is especially suitable for use in hotel or motel baths. It's a notable space-saver, since the toilet in the bathroom can be so positioned as to serve as a dressing table seat. Of genuine vitreous china with non-tarnishing Chromard fittings, the Guestledge is low on maintenance, high on guest appeal.

d **New G-6 and G-4.** They're new American-Standard gas-fired boilers that can be used with either hot water or steam systems. These boilers are compact and streamlined . . . drafthood and manifold are completely enclosed in a steel jacket. Service is simple because big, easy-to-remove access doors let maintenance men do their job quickly and thoroughly. These efficient boilers have A.G.A. approval. The G-6 boiler can be used singly or in battery to handle any commercial or industrial heating job. This compact boiler has a solid, one-piece cast iron base for reduced installation costs. The G-4 boiler can be used in large homes and small industrial and commercial buildings. Designed for quick, easy assembly.

b

design by American-Standard

d

These are just a few of the many plumbing, heating, cooling and kitchen products manufactured by the AMERICAN-STANDARD PLUMBING AND HEATING DIVISION, P. O. Box 1226, Pittsburgh 30, Pa.

AMERICAN-Standard

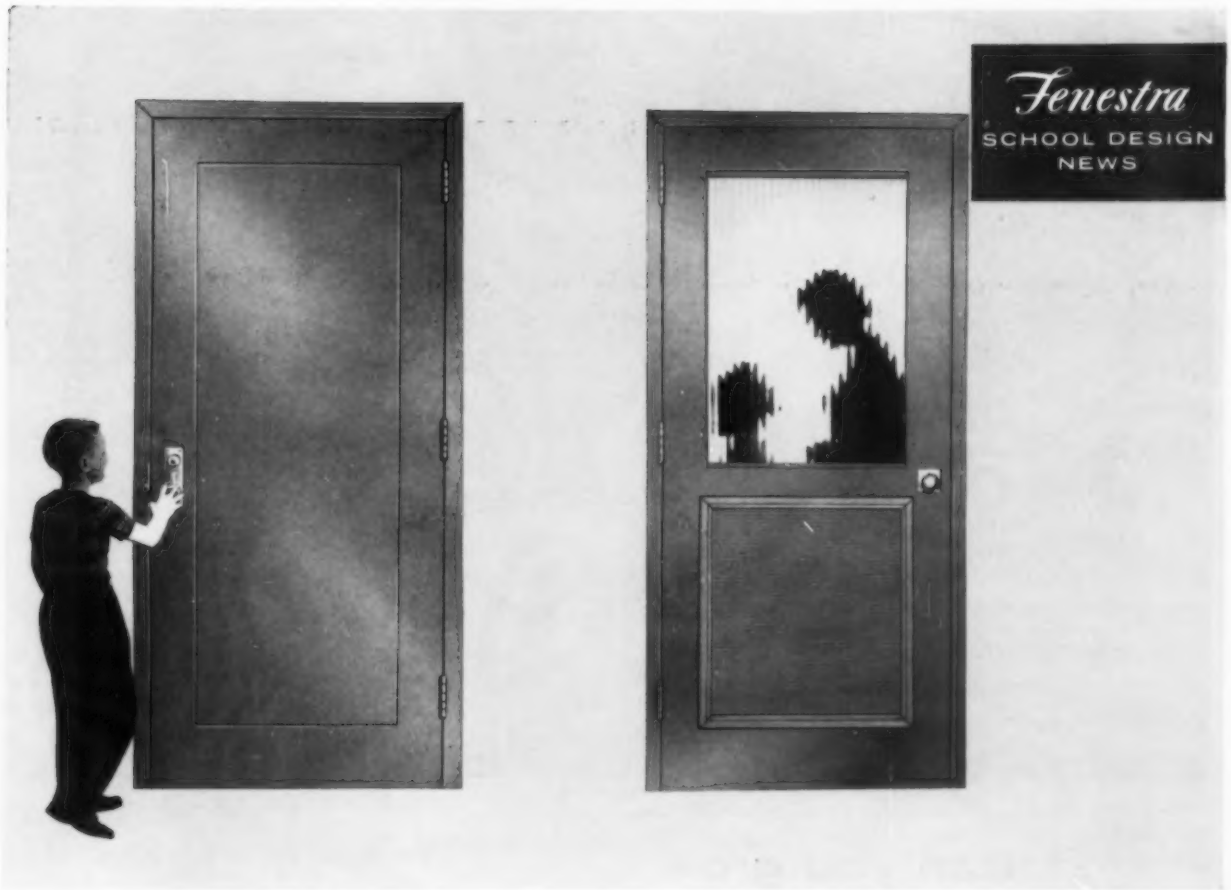
Fenestra packages hollow metal door, frame and hardware units to save you up to $100 per opening with this . . .

NEW IDEA

Look like costly custom-made doors, don't they? They're not. They're stock doors by Fenestra®—with an installed cost about $100 *less* per opening than you'd expect to pay!

Fenestra's new idea for saving you money on school doors is really very simple. We mass produce them on special jigs that save us expensive labor. We pass along this savings to you. We maintain large stocks of standard sizes to give you fast delivery and doors come to your building complete with frames and hardware, ready to install. You don't have to cut, fit, mortise, drill or tap a Fenestra Door. *One*

REIDLAND SCHOOL, Paducah (Reidland), Ky., cost less to build because 134 Fenestra 1¾" Hollow Metal Flush Doors were used. *Architect:* G. Tandy & Lee Potter Smith, Paducah, Ky. *Contractor:* Erhart-Knopf Construction Co., Inc., Louisville, Ky.



FOR SCHOOL DOORS

man with a *screw driver* can install it *in minutes.*

Fenestra Hollow Metal Doors swing open smoothly. They close quietly because there's a sound-deadening material inside. You save, year after year, on maintenance because Fenestra Doors can't warp, swell, stick or splinter. They last a lifetime!

Illustrated are Fenestra's $1\frac{3}{4}$" Entrance Doors, $1\frac{3}{4}$" Flush Door and the NEW $1\frac{3}{4}$" *Fen-Air* Louvered Door for air-conditioned buildings—three of the many fine doors in Fenestra's complete line. Call your Fenestra representative for detailed information or mail the coupon below.

Fenestra | HOLLOW METAL DOOR • FRAME • HARDWARE UNITS

Your Single Source of Supply for
DOORS • WINDOWS • BUILDING PANELS

Fenestra
PA-3409 Griffin Street
Detroit 11, Michigan

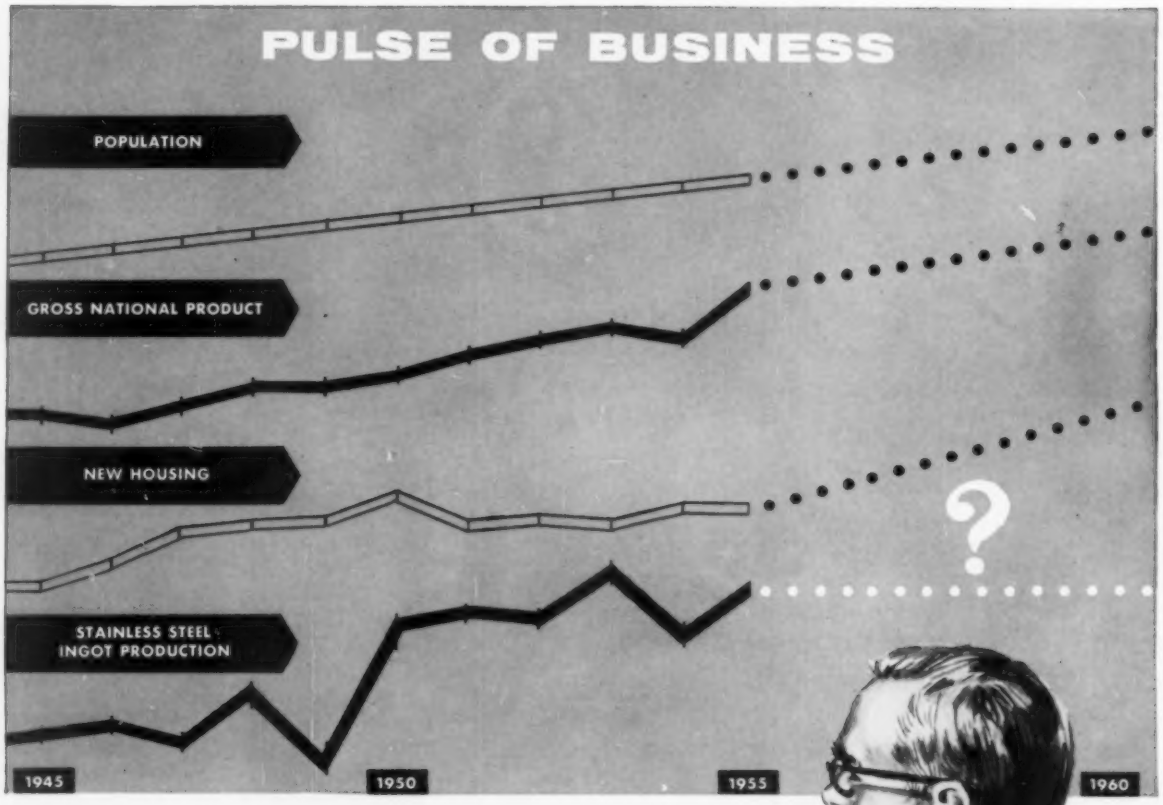
Please send complete information on Fenestra Hollow Metal Doors

Name _____

Firm _____

Address _____

City _____ State _____



Can you grow with your markets?

As the national economy continues to expand so also will your markets. For you to grow with these markets there must be a corresponding increase in your supply of raw material. Right now, as in the case of stainless steel, this presents a problem.

If stainless steel sheet plays an important part in the manufacture of your product, you are more than likely accustomed to specifying Type 302, 18-8 chrome nickel grade. Due to government stockpiling of critical and strategic nickel, this particular grade is not as readily available as before and no immediate increase in supply can be expected. How then, if you are to increase your participation in this growth, can you overcome your problem?

THERE IS A WAY—another grade of stainless, namely Type 430, *is* readily available. Since it is a straight chromium stainless, it is not affected by the nickel shortage. Type 430 is by no means new and untried as it has been used extensively in strip form by the automotive and other industries. Over 30% of all stainless made in this country is the non-nickel bearing Type 430 produced primarily as strip and not as sheet.

Beside availability, the substantial savings in base price between 430 and the 18-8 grade is also of significant importance in these days of high prices. The amount you are presently spending for your stainless steel supply will buy considerably more stainless in the 430 grade, particularly in our MicroRold sheets.

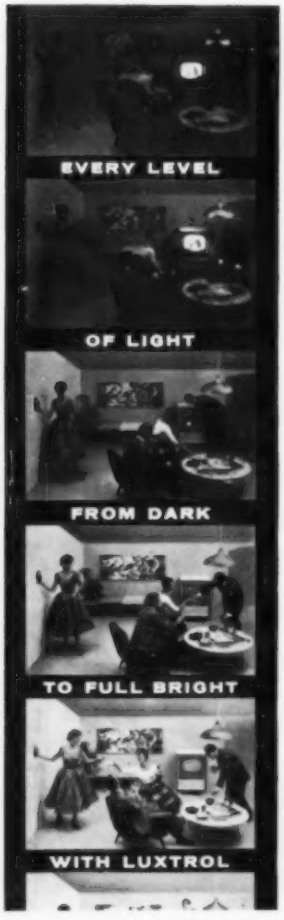
When applied properly in applications where extreme corrosion resistance is not a factor, Type 430 has all the desired qualities of beauty, strength, corrosion resistance, long life and low maintenance. The steel industry estimates that 50% of all stainless steel sheet applications could satisfactorily use Type 430 as an economical and practical material. If the product is cleaned regularly 430 stainless can be used in any application. Why don't you investigate the possibilities of Type 430 for *your* product?

Washington Steel
Corporation
4-M WOODLAND AVE., WASHINGTON, PA.

Send for your copy, "Care and Use of 430 Stainless"

Decorate
your clients'
homes

the modern new way...with light



Now you can use lighting . . . new LUXTROL **controlled lighting** . . . to give your clients functional and decorative advantages **never dreamed of before!**

At a price they welcome!

You can achieve, by the turn of a LUXTROL dial, the **perfect light effects** for every occasion, activity, mood. Yes, **any level** of light . . . from dark to bright and bright to dark.

LUXTROL banishes the restrictions forced on you by "all-or-nothing" lighting. Gives you unlimited design and functional possibilities for practically every room in clients' houses.

Recommend LUXTROL light control with complete confidence from every point of view. For commercial uses, as well as residential.

LUXTROL is a **well-designed, soundly engineered,** autotransformer-type unit . . . built by a leading producer of commercial lighting-control systems. It has Underwriters' Laboratories approval . . . operates smoothly, silently, safely. It's just as easy to incorporate into your plans as the old-fashioned wall switch it replaces.

What's more, LUXTROL not only controls incandescent lighting, but fluorescent and cold-cathode, too.

See for yourself how easily you can **please clients** by decorating with LUXTROL light control. Mail in the coupon. We'll send you complete information and arrange for you to receive a demonstration . . . right in your own office.

new

LUXTROL Light Control

A product of The Superior Electric Company

The Superior Electric Company
4046 Demers Avenue, Bristol, Conn.

Please send me full design data on new LUXTROL *Light Control.*

Name_____

Street_____

City_____ Zone____ State_____

The Margold Building

A. F. Jorss Iron Works

fabricates panels of Alcoa® Aluminum

for MARGOLD BUILDING

Parking Garage · Washington, D. C.

Handsome appearance, speed of erection, low cost and freedom from maintenance make the Margold Building unusually interesting to architects and builders. The Margold Building neatly reconciles two divergent objectives: the architect's goal of distinctive beauty . . . the owner's additional demand for low construction and maintenance costs. Alcoa Aluminum was the reconciling factor. It costs less . . . installs for less . . . provides a distinctive appearance with virtually no maintenance.

The A. F. Jorss Iron Works, Inc., detailed, built and field-erected the aluminum components of the Margold Building. The building's striking appearance was achieved by custom-made panels in Alumilite* Dark Gray, framed in contrasting Alcoa Aluminum in natural Alumilite finish.

If you are considering a new building, aluminum curtain wall construction could be a deciding factor. The architectural specialist in your nearby Alcoa sales office can help you . . . or write a letter to Aluminum Company of America, 1890-D Alcoa Building, Pittsburgh 19, Pennsylvania.

*Trade Name of Aluminum Company of America

Always Fasten Aluminum with Alcoa Aluminum Fasteners

This aluminum door being assembled from Alcoa Sheet and Extruded Shapes in the A. F. Jorss shop is typical of that company's custom work in ornamental aluminum.

Handsome dark gray appearance and clean, simple design characterize the Margold Building at 11th and F Streets, N. W., Washington, D. C.

OWNER—Goldnamer Assoc., Inc., Washington, D. C.
ARCHITECT—A. R. Clas, A. I. A., Washington, D. C.
GENERAL CONTRACTOR—William P. Lipscomb, Co., Inc., Washington, D. C.
ALUMINUM SUBCONTRACTOR—A. F. Jorss Iron Works, Inc., Arlington, Va.

Your Guide to the Best in Aluminum Value

ALCOA ALUMINUM
ALUMINUM COMPANY OF AMERICA

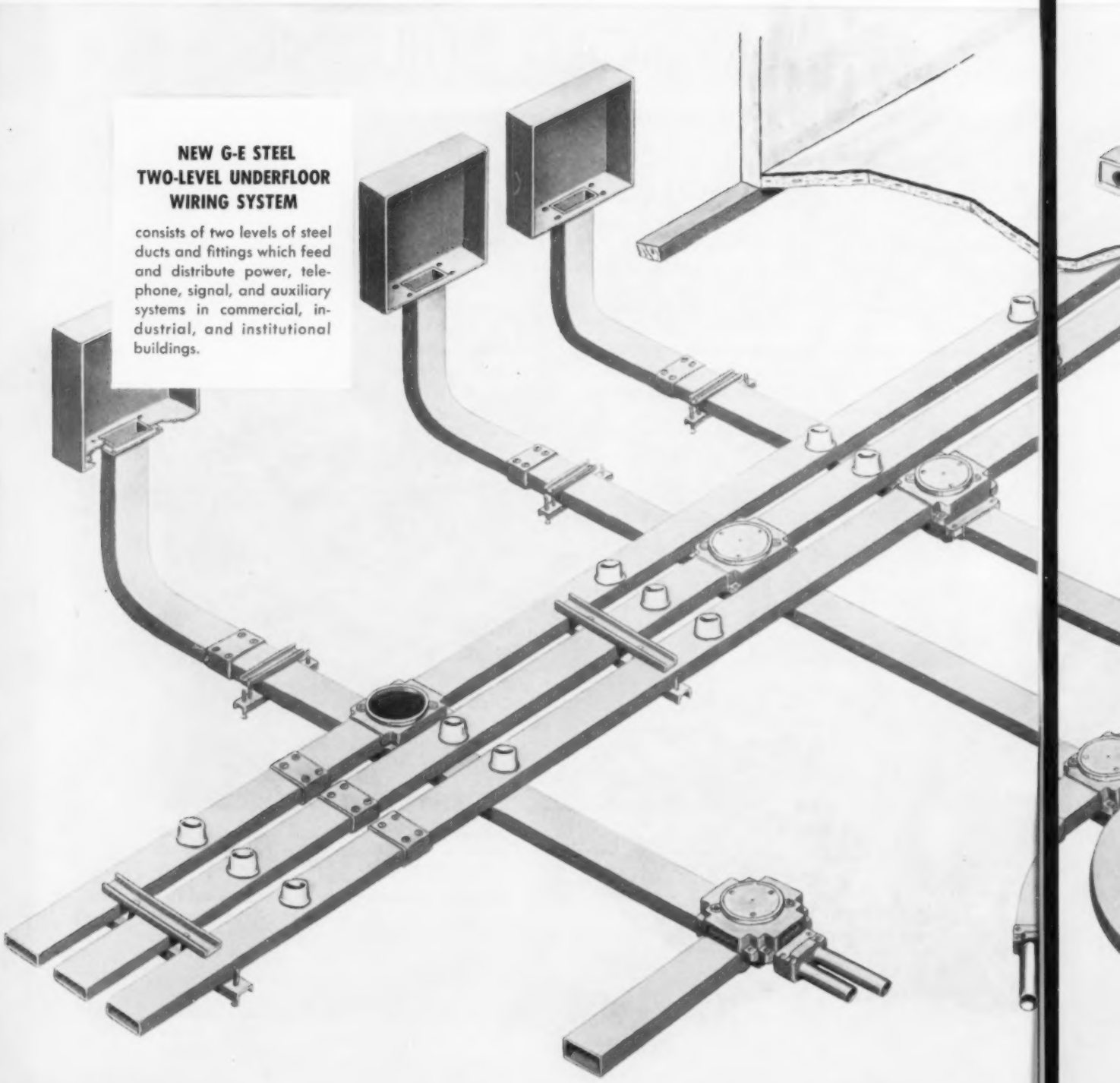
THE ALCOA HOUR—Television's Finest Live Drama—Alternate Sunday Evenings

General Electric Announces

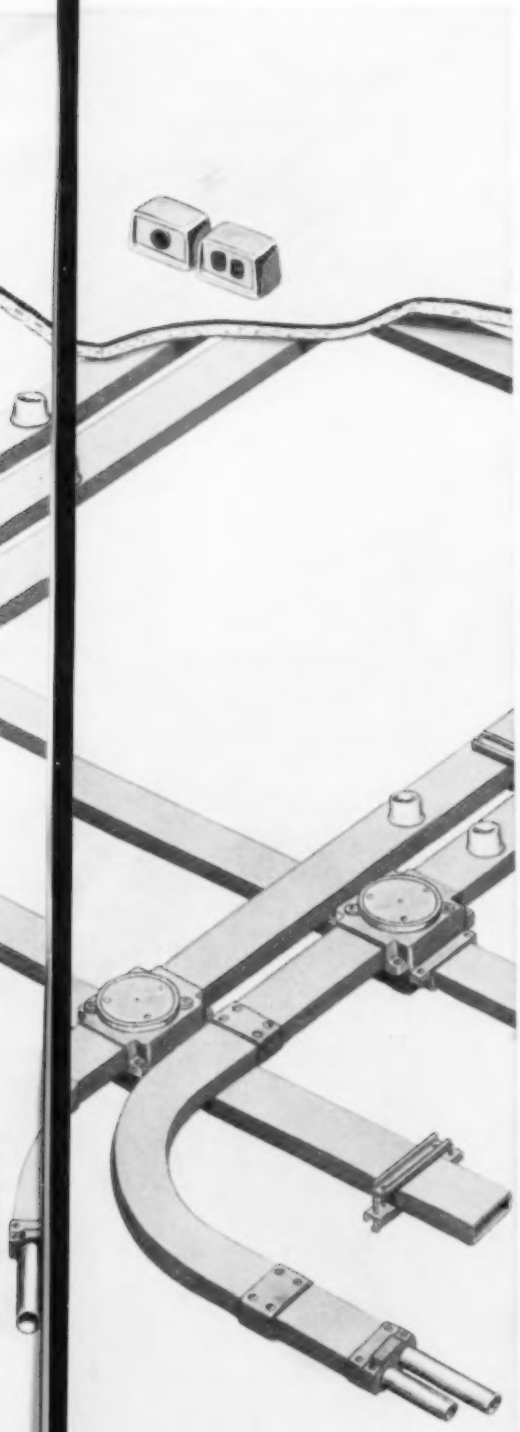
New TWO-LEVEL steel u

NEW G-E STEEL TWO-LEVEL UNDERFLOOR WIRING SYSTEM

consists of two levels of steel ducts and fittings which feed and distribute power, telephone, signal, and auxiliary systems in commercial, industrial, and institutional buildings.



el underfloor wiring system



- gives completely separate services
- permits unlimited number of duct feeds
- fits any predetermined floor layout
- allows unlimited number of services

A new two-level steel underfloor wiring system offering entirely new benefits to architects, engineers, electrical contractors, owners, and tenants has been announced by General Electric.

COMPLETE SEPARATION OF SERVICES because only single-duct junction boxes are used. Duct entrances are on two levels—usually with feeder duct below and distribution duct above. This separation allows unobstructed runs and permits conductors to be pulled straight through the boxes. No crossunders or crossovers are necessary in the new G-E two-level system.

FLEXIBILITY IN LAYOUT AND DESIGN is now possible because there are no limitations to the duct pattern in either the feeding or distribution portions of the two-level system.

ONLY ONE TYPE AND SIZE JUNCTION BOX TO INSTALL—contains no tunnels or barriers. Its entire interior is accessible for work and inspection. Wire pulling is easier and circuits are easy to trace because of two-level separation of all services.

INCREASED WIRING CAPACITY is provided for by the new steel duct (4-square inches cross-sectional area).

FIND OUT how this two-level system can help you distribute power, telephone, signal, and auxiliary systems. Get in touch with your nearest G-E Construction Materials District Office or write for information bulletin to Section C59-468, General Electric Company, Bridgeport 2, Connecticut.

Progress Is Our Most Important Product

GENERAL ELECTRIC

CONDUIT PRODUCTS DEPARTMENT

For the ult

ultimate in distinguished interiors

EBBTONE®

Acoustical tile

Those who design with clean, sculptured forms and sharp contrasts will find in Ebbtone a material of classic beauty. Here is a richness and elegance new to tile—in its impeccable whiteness, in its subtle textures, in a finish of fabric-like softness and depth. This is unquestionably today's most beautiful acoustical tile. Yet Ebbtone offers more than beauty. Its foamed, completely mineral composition combines a light reflectant value of 81%, maximum acoustical and insulating efficiency, and its fire hazard classification as per Underwriters' label shown below is rated incombustible by building codes and insurance rating bureaus. And should painting ever be required Ebbtone can be painted with a non-bridging paint without materially changing its acoustical characteristics.

Specify Ebbtone as the crowning glory for your finest interiors. Its chaste, classic beauty is the perfect foil for a decor of any mood, or period or color.

For client presentations request matched panels exhibiting the several Ebbtone finishes available.

FOR IRREGULAR SURFACES SPECIFY CORALUX ACOUSTICAL PLASTER, THE PERFECT COMPLEMENT TO EBBTONE.

EBBTONE Acoustical Tile is available factory kerfed, beveled and backcut for suspension systems, or may be applied with approved adhesive according to manufacturer's specifications. Ebbtone is available in 12" x 12" and 12" x 24" sizes.

APPROVED by the Board of Standards and Appeals for use in New York City under Cal. No. 463-53-SM.

F. E. Schundler & Company, Inc.

594 RAILROAD STREET • JOLIET, ILLINOIS

RATED FIREPROOF MATERIALS, ACOUSTICAL & INSULATING

Developers and producers of incombustible mineral products including Ebbtone Acoustical Tile, Fesco Insulation Board, Coralux Acoustical Plaster, Coralux Perlite Aggregates, Mica Pellet Vermiculite, High Temperature Insulating Blocks and Insulating Cement.

ABSORPTION COEFFICIENTS OF EBBTONE ACOUSTICAL TILE

Test Number	Unit Size Tested	Wgt. Lbs. Per Sq. Ft.	Surface	Thickness	Mounting	Coefficients 125	250	500	1000	2000	4000	Noise Reduction Coef**
A54-280	12" x 24"	1.16	Natural White	13/16"	7	.63	.71	.84	.77	.84	.94	.75
A54-281	12" x 12"	1.16	Natural White	13/16"	1	.13	.31	.75	.95	.76	.77	.70
A55-296	12" x 12"	1.22	Natural White	¾"	7	.57	.58	.60	.70	.88	.86	.70
A56-17	12" x 12"	1.28	Natural White	¾"	1	.10	.34	.66	.87	.79	.83	.65

**The noise reduction coefficient is the average of the coefficients at frequencies from 250 to 2,000 cycles inclusive, given to the nearest 5%. This average coefficient is recommended for use in comparing materials to be applied in offices, hospitals, banks, corridors, etc.

Schundler
EBBTONE®
Trademark registered U.S. Pat. Off.
ACOUSTICAL TILE
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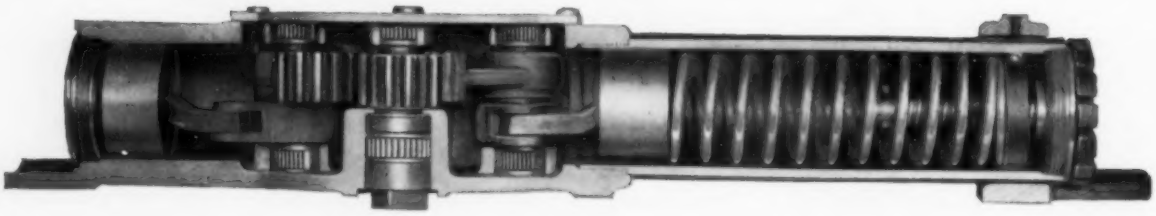
Attached to or Suspended from Noncombustible Surfaces With Noncombustible Attachments
FLAME SPREAD 5-10
FUEL CONTRIBUTED 10
SMOKE DEVELOPED 0

now ALL the door controls are built-in



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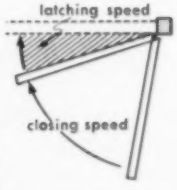
OVERHEAD CONCEALED DOOR CLOSERS

no. 220 series

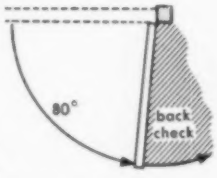
1. two independent closing adjustments

The closing speed from open to approximately 20° is controlled by one adjustment and the latch speed from 20° to closed position by another.



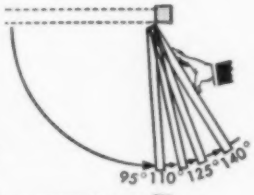
2. hydraulic shock absorber (back check)

At approximately 80° a hydraulic resistance starts to slow down or check the opening action of the door. Hydraulic back check optional.



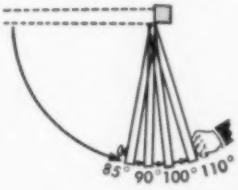
3. built-in spring cushion door stop

Door is "cushion stopped" at choice of any one of 4 factory-set positions—95°, 110°, 125° or 140°. Stop removed for wider openings to 160°.



4. built-in door holder

When specified—built-in to hold door at choice of 85°, 90°, 100° or 110°.



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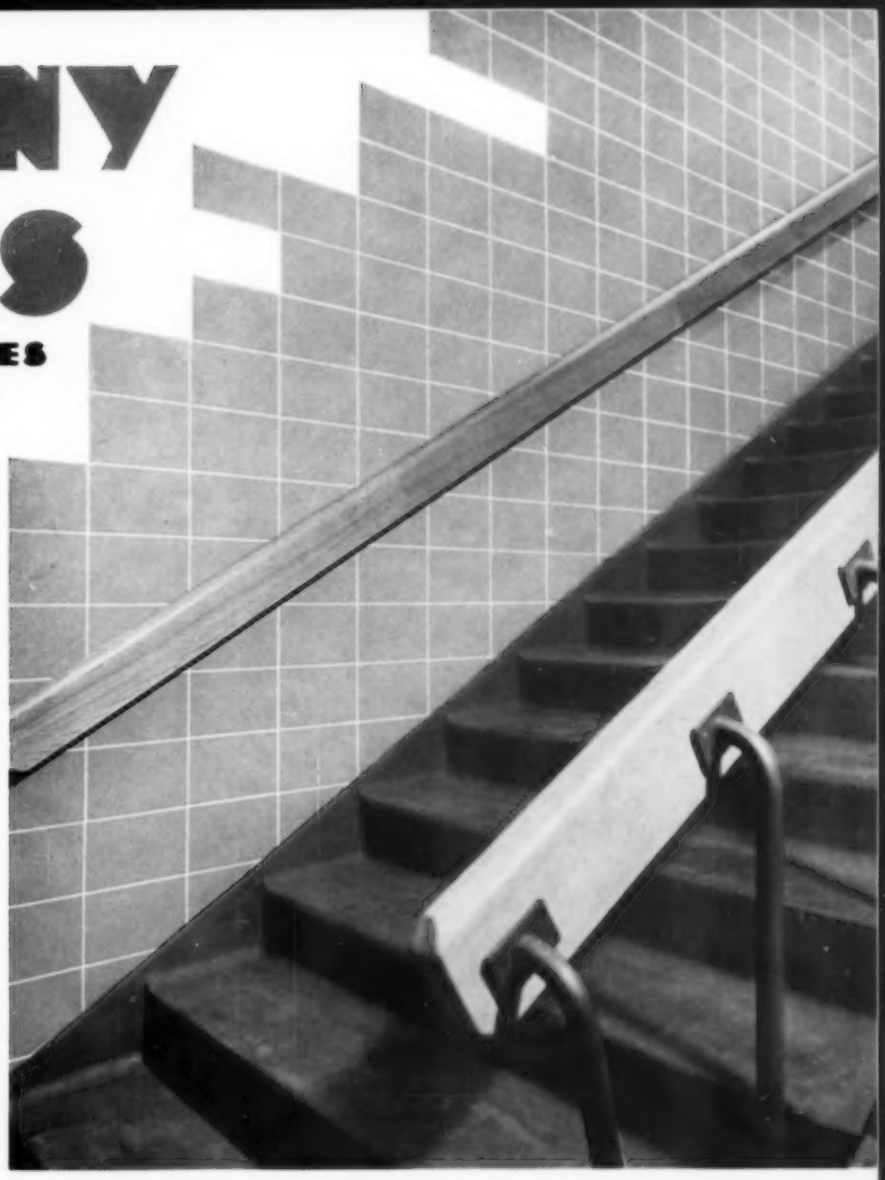

Stairway in the North Field High School, North Field, Minnesota, Magney Tusler & Setter, Architects & Engineers, Minneapolis, Minnesota. This features new large size 6" x 9" wall tile in Clair DeLune Blue #725.

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Architects: Foley, Hackler, Thompson & Lee — *General Contractor. George D. Johnson Co.*

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This handsome, recently completed school building is another example of a Hope's Multi-Story Window Wall installation. The entire facade shown is comprised of Hope's pressed metal frames, painted white, with the large glass areas glazed directly into them. The ventilators inserted at intervals are Hope's Heavy Custom Casements. Floor-to-sill insulated panels are red porcelain enameled. These red panels and white frames create an effect that is most attractive and only occasional maintenance is required to retain this newness indefinitely.

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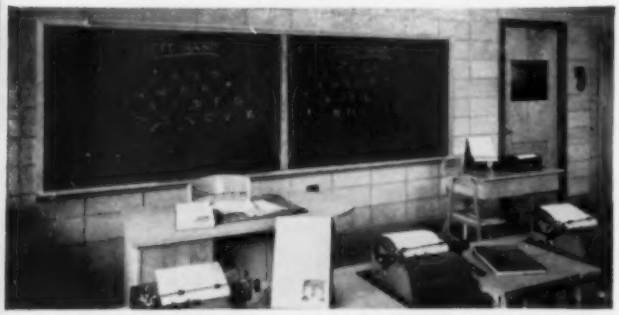
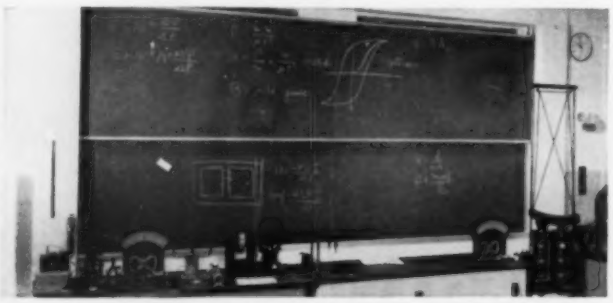
*PORCELAIN FACES BY THE BETTINGER CORP.



Chalk doesn't "squeal" on Weldwood Chalkboard's special porcelain surface that's easy to write on, easy to erase, easy to keep clean. Valhalla Junior High School, Valhalla, N. Y. Arch: Robert A. Green.

Built-in Weldwood Chalkboard is covered by sliding panels, allowing one section at a time to be uncovered for quizzes. Darien Junior High School, Darien, Conn. Arch: Ketchum, Gina & Sharp.



Electrically operated double Chalkboard moves on tracks in physics laboratory at University of Pennsylvania. Problems started on one board can be finished on the other. Arch: James R. Edmunds, Jr.

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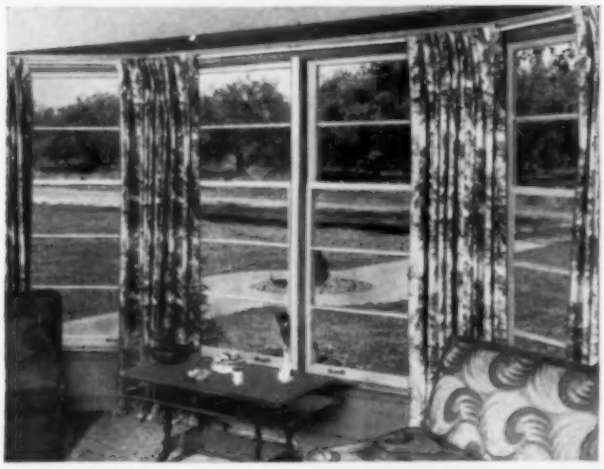

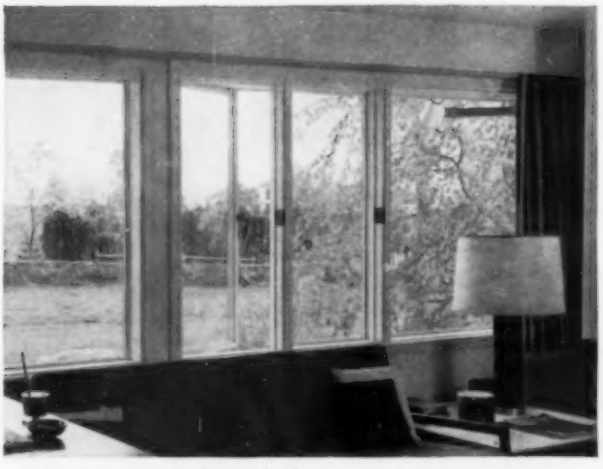

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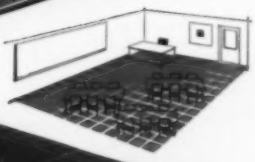

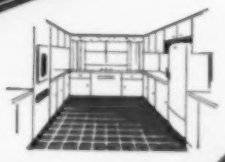

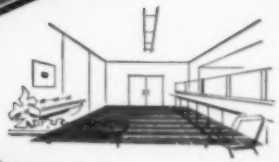

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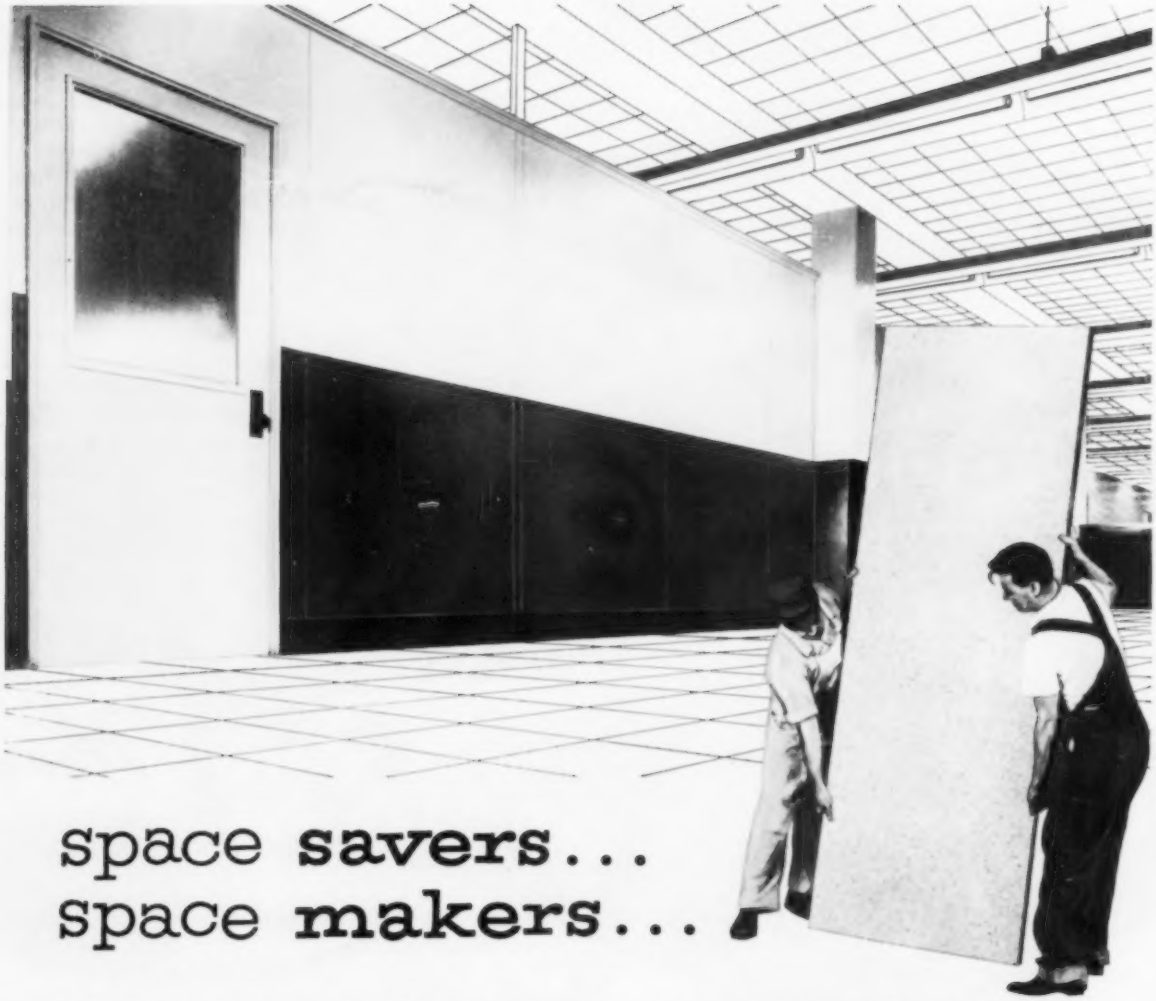

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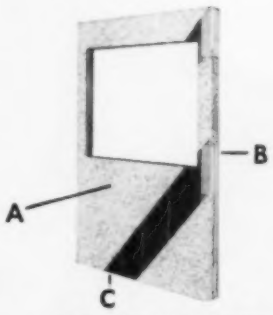

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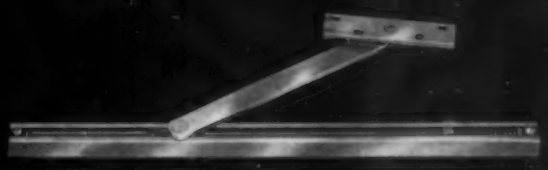

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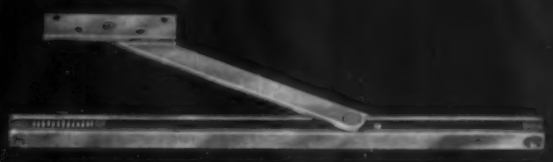

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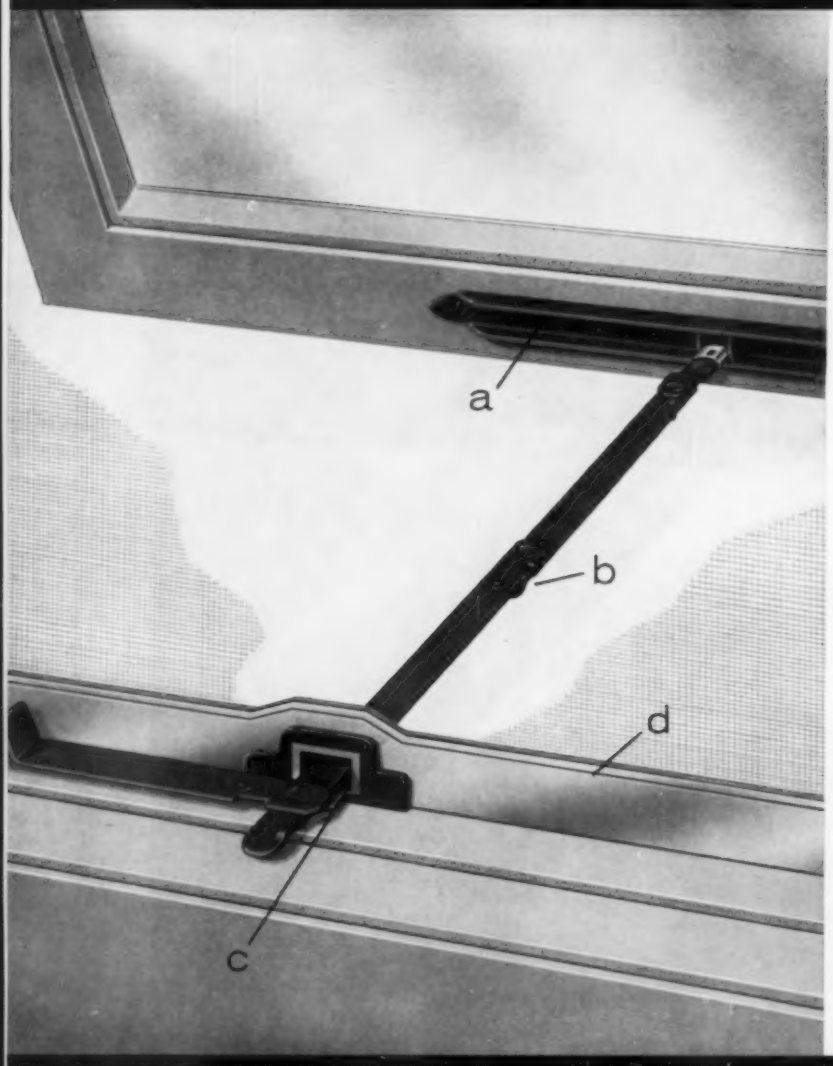

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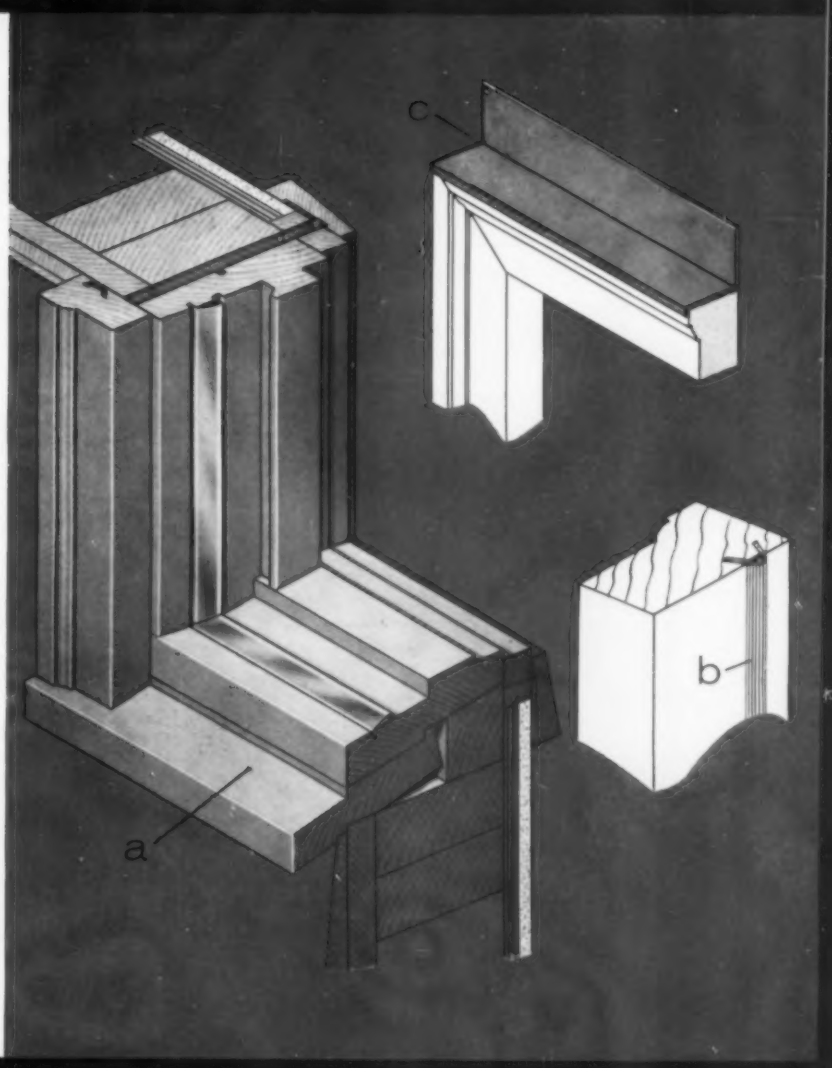

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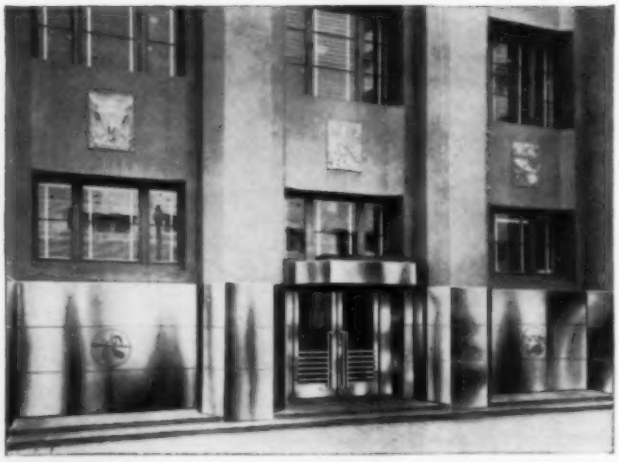

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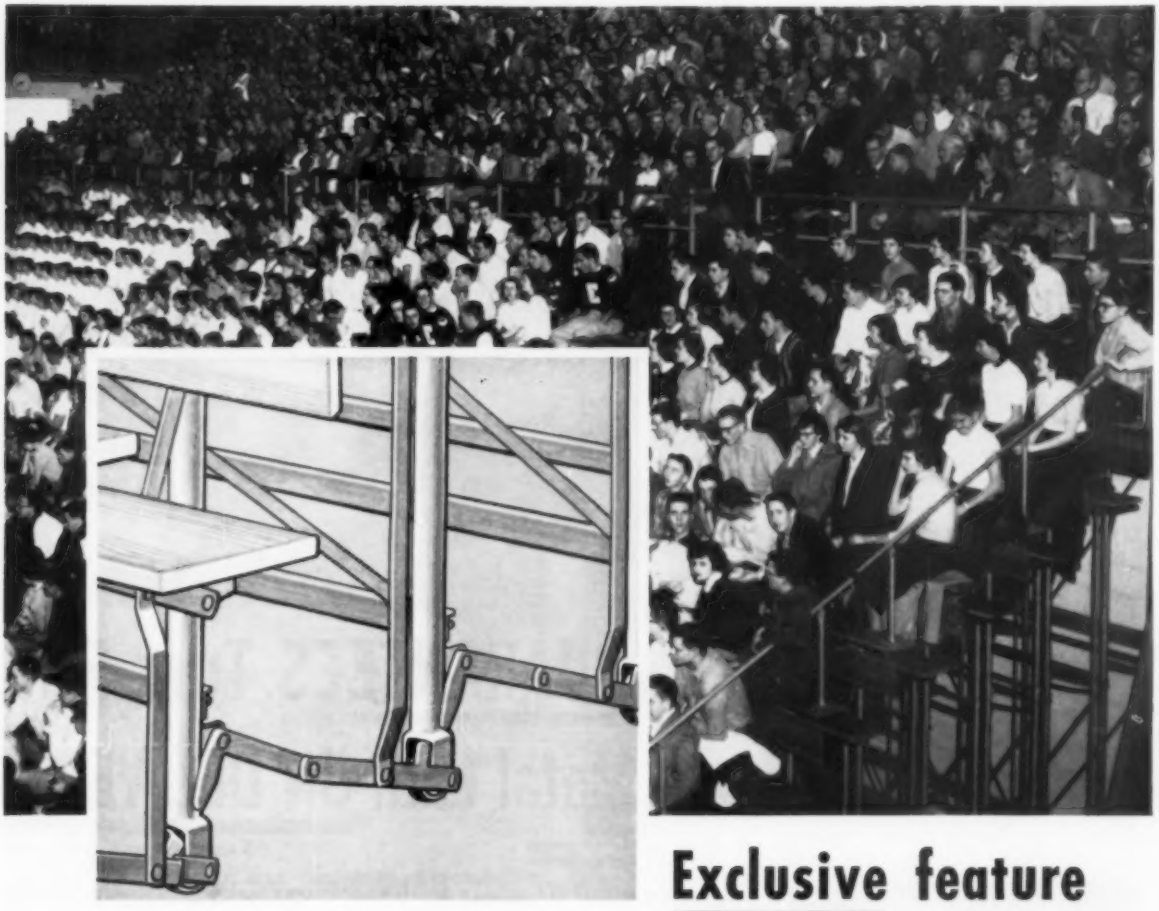

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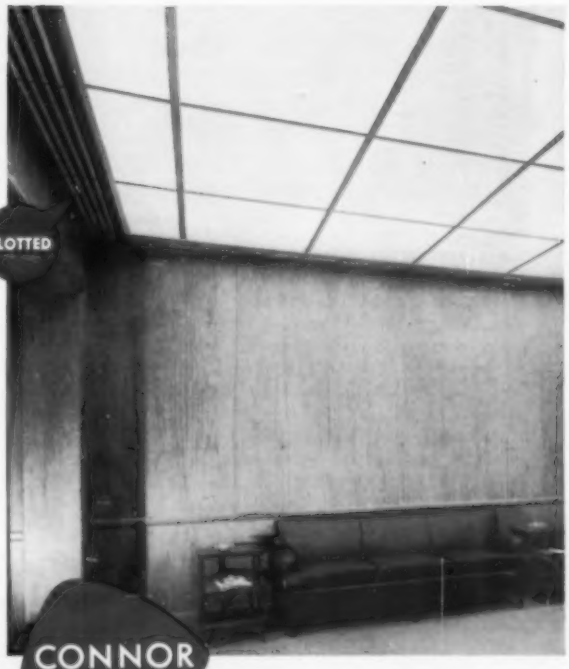

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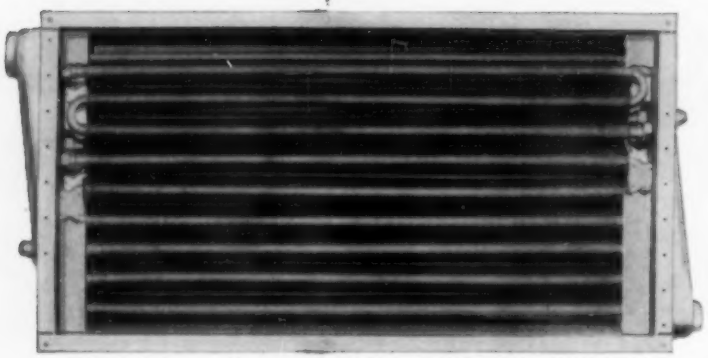

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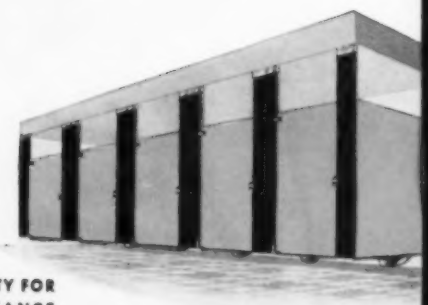

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CARIBBEAN REPORT

T. H. Creighton

17 y M Apartment building, Havana, Cuba. Architects: Ernesto Gómez Sampera, Martín Domínguez, Bartolmé Bestard, Manuel Padrón. Structural Engineers: Luis Saenz, E. R. Cancio, Ignacio Martín.

CARIBBEAN REPORT by Thomas H. Creighton

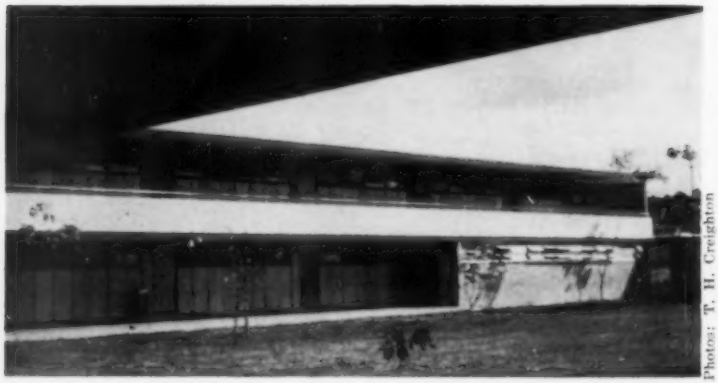
Design and construction activity on the islands which circle the Caribbean Sea—almost all of them now easily accessible by air from the east coast of the United States—is at a remarkably high level. While in some areas (perhaps notably the Dominican republic, where a huge Trade Fair is now in progress) the design quality has been reminiscent of the period we now regard as "modernistic"; in some others, marked advance has been made in adapting contemporary design principles to tropical climates. Examples are shown here from two islands; Cuba, where a large volume of public building and long-range planning under the capable direction of Minister of Public Works Nicolas Arroyo (himself a first-rate architect) and private activity in hotels, apartments, and commercial buildings provides some fine examples; and Puerto Rico, an "Associated Free State" of the United States, where U.S. tourists, U.S. tax-exemption-tempted industry, and a strong desire of the people to raise living and cultural standards have resulted in a design resurgence.

These two islands are used as examples primarily because they provide the best illustrations of local work by local people. Haiti has been handicapped by economics and aside from a few new exposition buildings completed several years ago has little recent work to show. Most of the distinguished current design in Jamaica (such as Stone's Bay Roc Hotel) has been done by New York or Miami architects. In the U.S. Virgin Islands, where tourism has resulted in haphazard homebuilding and moderne hotel expansion, a pleasantly relaxed resort at Caneel Bay on St. John is being completed for Laurance S. Rockefeller by L. Bancel LaFarge, New York architect, with Bryan Lynch as landscape designer.

Cuba's long-range planning and public works program will be documented by P/A as it reaches further realization. José Luis Sert & Paul Lester Weiner have been retained as consultants by the Government, and have helped set up a Junta de Planification, now actively functioning. Among the private ventures most striking is the 39-story reinforced-concrete apartment house shown on page 87, dominating the Vedado section of the city, where a few years ago the U.S. Embassy (*February 1955 P/A*) was the tallest building. Based on a box-frame structure, with "through" apartments sold on the co-operative plan known as "horizontal property ownership," the building sits on a huge block with two floors of parking below grade, two "shopping center" floors at street level, and a recreation park (including swimming pool) at the base of the Y-shaped superstructure. Going through it recently with one of the architects, Ernesto Gómez Sampera, the writer was impressed with the high quality of detail, construction, and refinement of design in a building which, by its very size, *might* have been a monster.

Among the other buildings, the private Morris School (*below*) designed by Arroyo and his architect-wife, Gabriela Menendez, seems outstanding. For all grades from kindergarten through high school, the various buildings are gay and colorful, and at the same time well related to the site, to each other, and to the climatic conditions.

Contemporary houses in Cuba are likely to be well planned to catch the constant breeze, but overdesigned in detail. An outstanding exception recently completed is the house illustrated (*below*), by Harvard-trained architect Mario Romañach. Various terraced levels, as well as the interior rooms, make full use of the possibilities for outdoor living, and the whole has a feeling for scale and



Photos: T. H. Creighton

Morris School (above), *Havana, Cuba. Architects: Arroyo y Menendez.*
Residence (right *and* below), *Havana, Cuba. Architect: Mario Romañach.*

Photos: Muniz

texture that is refreshing.

In Puerto Rico there is a tendency, understandable in that flamboyant climate, to be unrestrained in design. The work of two firms stands out. Henry Klumb, highly original designer, is touched slightly with the Frank Llyod Wright brush; and Toro & Ferrer are best known, so far, for their contribution to the design of Caribe-Hilton Hotel in San Juan. Klumb's work at University of Puerto Rico repays a visit by the architecturally minded tourist, and his La Rada Hotel (*below*) is an ingeniously planned and visually pleasant open-corridored building on the Lagoon.

Toro & Ferrer were local architects for both the new International Airport and the Supreme Court Building (*bottom, right*). The Air Terminal, on which they were Associates of Knappen-Tippetts-Abbett-McCarthy of New York, is one of the most thoughtfully planned of the complicated international terminals, and provides a handsome focus for what is a rapidly developing section of San Juan. For the Supreme Court, Warner-Leeds were Associated Architects (primarily for interiors) and the combination has produced a distinguished, dignified public building well planned for the climate (open wood slats allow ventilation), for efficiency (a flexible office unit, with partitions open at ceiling and floor, used as a module), and for the court functions (below the shallow dome). A reflecting pool is before the building, in the direction of a city park.

International Air Terminal, San Juan, Puerto Rico. Walther Prokosch, Architect for Knappen-Tippetts-Abbett-McCarthy, Engineers. Associated Architects, Toro & Ferrer. Photos: Lee Boltin

La Rada Hotel, San Juan, Puerto Rico. Architect: Henry P. Klumb.

Supreme Court Building, San Juan, Puerto Rico. Architects: Toro & Ferrer. Associated Architects: Warner-Leeds.

Washington Report

by Frederick Gutheim

Looking back over five years of experience in promoting modular co-ordination, William Demarest has concluded that there is no doubt that this system of dimensional standardization will find universal acceptance. The only question is how fast this will happen. Demarest has resigned as modular co-ordinator in the national headquarters of AIA, where he has worked since 1950, to become a member of the Washington staff of NAHB. The semantics give a clue as to what has happened to modular in those six years. Five years ago it was called "modular co-ordination" in reflection of the architect's attitude; today it's called "modular measure" to reflect the attitude of industry and builders, the men on the receiving end of drawings and specifications. Much of this change can be traced to the growth of the modular idea as it got off the drafting board and onto the job. But a lot is also due to the five years of skilful and energetic promotion that Demarest put into this little-known venture sponsored by the AIA, the Producers' Council, and allied building interests.

The most significant accomplishment of modular measure was in the field of masonry, where nearly everything is now controlled by the 4 x 4 x 4 dimensional standard. Bricks fit bricks—but they don't yet fit doors. Of equal importance, the architects have been sold on modular. By drafting-room demonstrations, public talks, articles in the "Grid Lines" department of AIA's Bulletin, practical difficulties have been overcome. Scores of architectural offices that have switched to modular have found they have reduced drafting costs. Contractors can be found who refuse to bid on drawings not made to modular principles.

Good as this is, some distance has yet to be traveled before building's dimensional problems have been solved. The continuing industrialization of building is the chief reason why dimensional standardization is imperative in the drafting room, in the manufacturer's catalog, and on the job. This is a bigger job than was envisioned. But dimensional standards need an anthropometric base. Plumbing, kitchen equipment, windows, and doors—indeed the whole of architecture—need to be informed by a kind of research in dimensions that has only commenced. There are problems in measurement, itself, the desirability of the metric system among them, which deserve consideration. If it is agreed that "all dimensioning in building will soon be modular" (as Demarest concludes) then it is time to face the questions that must be solved before building can be improved in design and

News Bulletins

• A HALF CENTURY OF ARCHITECTURAL EDUCATION, exhibition to open at Georgia Institute of Technology, April 29, will show work completed by alumni over past 50 years. Retrospective exhibition is in honor of Harold Bush-Brown, Director of School of Architecture, who is retiring this June after 31 years of teaching.

• Design for 16-story YWCA Metropolitan Headquarters in downtown Pittsburgh—by Pietro Belluschi and Skidmore, Owings & Merrill—will provide unusually attractive living facilities for 150 single, working women. Living quarters, from sixth floor up, to feature private baths, storage, and glass wall opening onto balcony (below); three floors of tower will be occupied by administrative offices and reception areas surrounded by roof terrace. Dining facilities and Activities Rooms will be located on first two floors, which cover entire site on Wood Street from Third to Fourth Avenues; swimming pool, gym, and bowling alleys will be in basement.

• The James F. Lincoln Arc Welding Foundation is offering $20,000 for ideas to accelerate progress in design or application of arc welding. Competition (open to all U. S. citizens) closes July 30. Write: The James F. Lincoln Arc Welding Foundation, Cleveland 17, Ohio. . . . 1956 Leather in Decoration Design Competition—awarding seven $1000 prizes—is sponsored by The Upholstery Leather Group to encourage use of leather in architecture and design. Competition (open to professional architects and designers) closes May 20; write: Design Competition, The Upholstery Leather Group, Inc., 141 E. 44 St., New York 17, N. Y. . . . Rendu for 1956 LeBrun Traveling Scholarship—$3000 grant for six months' travel in Europe—will be held April 30. Nomination forms and programs for "A Town Center" are available from Chairman Benjamin Lane Smith, LeBrun Committee, New York Chapter, AIA, 115 E. 40 St., New York 16, N. Y.

• Jury for AIA's Eighth Annual Honor Awards Competition announces selection of five Honor Awards and 14 Awards of Merit, to be presented at Convention in Los Angeles, May 15-18. Honor Awards winners: John Lyon Reid & Partners, for Hillsdale High School, San Mateo, Calif.; Philip C. Johnson, for Hodgson House, New Canaan, Conn.; Wurster, Bernardi & Emmons, for Center for Advanced Study in Behavioral Sciences, Inc., Stanford University

operationally preplanned through this method.

The chief need is for a new organizational sponsor for modular measure and the related kinds of dimensional work. This has now become a broad movement rather than a project. It involves all building interests. Rank and file, no less than management and professional men, are all concerned. Demarest's idea is that a large conference-type membership organization concerned with all aspects of dimensioning in building is needed. Draftsmen and foremen, superintendents and mechanics, as well as architects, manufacturers and contractors, would belong. Men who lay out building work, who today have no organization except a trades union to which they belong, could come together here to advance their occupational and craft interests. In this broader form of organization, Demarest believes, a realistic, practical, effective development of what has been so well begun can be undertaken. Here is a bold plan that deserves serious consideration, not only by the AIA and Producers' Council committee (which has sponsored Demarest's work in the last five years) but by a more representative audience they should call together.

• UNDERCURRENTS: An enlarged program of international cultural exchanges is in prospect, but there is little likelihood of action on the more comprehensive Arts bills proposed by Rep. Frank Thompson. • Eric Gugler's design for a Theodore Roosevelt memorial here is an armillary sphere to be erected on an island in the Potomac. • Only Congressional action can now alter Central Intelligence Agency's plan to build its $49-millions headquarters, designed by Harrison & Abramovitz, on a rural site at Langley, Va. • Foster Dulles has also secured White House support for an exemption to dispersal standards, and will build a greatly enlarged $50-millions State Department, Washington's single, biggest, government building, five blocks from the White House. • One of the greatest local planning controversies has been concluded by the decision to route a new heavy-duty inner-loop expressway along the north side of the Tidal Basin, rather than south along the Potomac. • The National Auditorium Commission has dropped sports events from its program, and in its final report (due May 1) will concentrate more on music, theater, and arts activities. • The largest Federal building outside Washington will be the $45-millions lease-purchase building planned as part of the new San Francisco civic center. • Federal aid for education is indefinitely stymied in the House Rules Committee. • Senator Lehman's bill to create a Federal middle-income housing program (S. 3158) is not likely to receive favorable action in any form, but it should measure the political appeal of such a program. • Inventory shows a 21.4% of continental U. S. is Federally owned land, and even in Washington, D. C., the figure is only 29.8%. • A detailed $125-millions improvement program to be executed over the next 10 years has been announced by the National Parks Service. • Topping the Smithsonian's building program is a $33-millions budget request for a Museum of History and Technology, on a site facing the Mall.

Grounds near Palo Alto, Calif.; Hellmuth, Yamasaki & Leinweber, for Lambert-St. Louis Airport Terminal Building, St. Louis; and Skidmore, Owings & Merrill, for Manufacturers Trust Company Fifth Avenue Branch, Manhattan.

• Look Magazine invites nominations for "Community Home Achievement Awards"—nine top awards to be given to cities and towns for developing and improving residential areas during 1956. Citizens, public officials, or civic groups may obtain nomination blanks and rules (due June 1, 1956) from Raymond Ruffio, Building Trades Manager, Look Magazine, 488 Madison Ave., New York 22, N. Y.

• Architectural League of New York presented awards to winners of Annual Gold Medal Exhibition at dinner held March 15. Gold Medal in Architecture went to Leo Lionni, Designer, and Giorgio Cavaglieri, Architect, for Olivetti Showroom and Offices, San Francisco. Honorable Mentions in Architecture: Paul Thiry for Northeast Branch Library, Seattle; and Eero Saarinen Associates, Architects, with Anderson, Beckwith & Haible, Associated Architects, for MIT Auditorium and Chapel. Gold Medal in Sculpture: Marshall M. Fredericks of Royal Oak, Mich. Gold Medal in Mural Decoration: Fred Conway of Ladue, Mo. No awards in Landscape Architecture or Engineering.

• Aluminum Company of America Foundation's $2500 grant to RPI will finance series of lectures—to be known as "Alcoa Lectures in Architecture"—by eminent architects and outstanding men in allied fields.

Lawrence Williams

• New 13-story office structure overlooking Philadelphia's historic Independence Mall, was designed by New Orleans Architect Charles R. Colbert. Building, located at Fourth and Chestnut Streets, is sheathed in glass, aluminum, and granite.

• Six architectural firms have been invited to enter competition to design new $3.5-millions John M. Olin Library at Washington University, St. Louis, Mo. Drawings, to be judged May 4-5, will be submitted by: Hellmuth, Obata & Kassabaum, Inc.; Jamieson, Spearl & Grolock; and Murphy & Mackey, all of St. Louis; Louis I. Kahn, Philadelphia; Caudill, Rowland, Scott & Associates, Bryan, Tex.; and Edward D. Stone, New York City. Construction of air-conditioned structure is expected to begin in March 1957.

• Arthur L. Guptill, 64, architect, author, and publisher, died in Stamford, Conn., Feb. 28. His first book, "Sketching and Rendering in Pencil" (1922) was also first book of Pencil Points Library; Guptill also taught at Pratt Institute and Brooklyn Museum, was co-editor of American Artist, co-founder of Watson-Guptill Publications, Inc., in 1937, and founder of Amateur Artists Association of America in 1951.

Air Force Academy Buildings OK'd

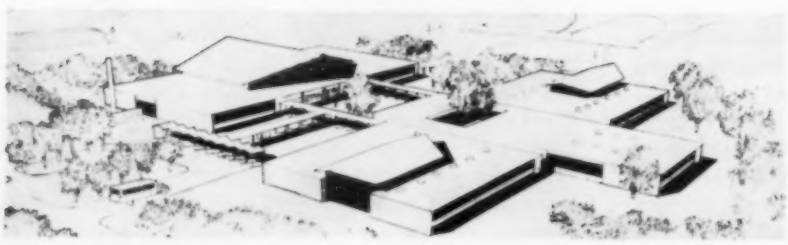
COLORADO SPRINGS, COLO., March 12—Exterior design of all buildings planned for the academic area of the new Air Force Academy (with the exception of the chapel) has been approved, Secretary of the Air Force Donald Quarles announced today. To be constructed on the 17,500-acre permanent site seven miles north of here, the final designs (*classroom building, left*) represent restudy of original concepts. Skidmore, Owings & Merrill, principal Architects-Engineers; Welton Becket, Pietro Belluschi, Roy Larson, and Eero Saarinen, Architectural Consultants; Lawrence W. Roberts, Engineering Consultant; Lt. Gen. H. R. Harmon, Superintendent of the Academy; Col. A. E. Stoltz, Director of the Air Force Academy Construction Agency.

New Eames Lounge Chair Uses Feathers and Down

NEW YORK, N.Y., March 14—Unveiled today was the latest of Charles Eames' remarkable innovations in seating developed for Herman Miller Furniture Company—a super-comfortable, tilting, swiveling, lounge chair and ottoman. Not least remarkable about the combination is price—$600 in muslin; $680 upholstered in soft, black leather; also available in Naugahyde or Alexander Girard fabrics.

Parts include three molded-plywood shells of rosewood-face veneers joined by black-enameled, cast-aluminum spacers, attached through neoprene "shock mounts." The five-pointed chair base and four-footed ottoman support are also enameled, cast aluminum. Seat cushion has a foam-rubber core, enveloped in feathers and down; interchangeable, detachable back cushions are wholly feathers-and-down filled.

Winners of St. Louis School Design Competition Announced



On the basis of a competition, open to all registered architects in the St. Louis metropolitan area, Hellmuth, Obata & Kassabaum, Inc. were selected as architects for this proposed Junior High School. Jurors for the Parkway Consolidated School District Competition were: William W. Caudill, Charles R. Colbert, and George D. Englehart, with Buford L. Pickens as Professional Advisor. Second place went to Eric W. Smith, Jr. & Robert E. Entzeroth; Honorable Mention with Special Recognition, to Joseph Passonneau.

Two Air-Conditioning Manufacturers Build New Units

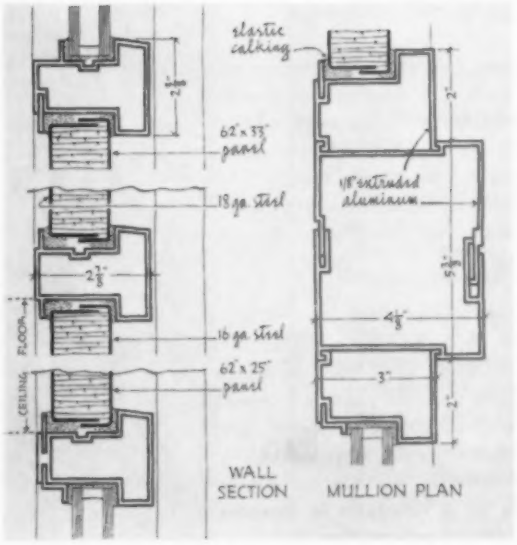
Plans for extensive building programs have been announced by the Trane Company of La Crosse, Wisconsin and Carrier Corporation of Syracuse, New York. The L-shaped building (*top right*) will house Trane's engineering departments, as well as conference rooms, dining, and other adjunct facilities. F. A. Fairbrother is the Architect for this building; George H. Miehls, Engineer; Albert Kahn, Associated Architects & Engineers, Inc., Consultants. Rendering (*right*) represents the new headquarters, research, and development buildings for the Carrier Corporation. Project Architects and Engineers are Schmidt, Garden & Erikson; Carson & Lundin, Consultants; Clarke & Rapuano, Landscape Architects.

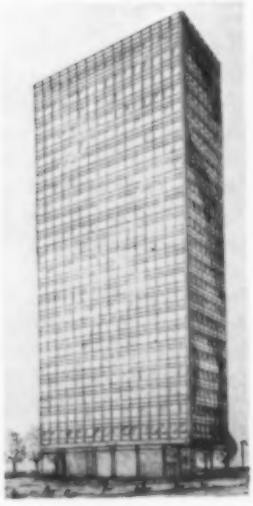
Tallest West Europe Office Building To Have Aluminum, Porcelain-Enamel Wall

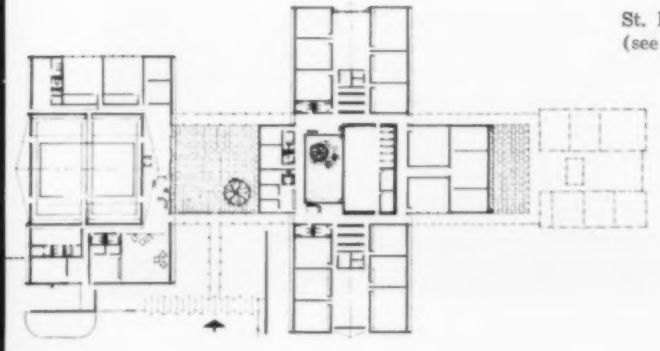
Düsseldorf, Germany, will soon claim the tallest office building in Western Europe. The 26-story structure will be clad with a curtain wall composed of 1800 light-blue porcelain-enameled panels, extruded-aluminum mullions, and double-glazed windows (*right*). Owner Mannesmann, A. G., one of Europe's largest steel producers and fabricators and German licensee for porcelain-enamel products developed by The Bettinger Corporation, Waltham, Mass., will use the latter's methods in manufacturing the walls.

The insulated panels (to be set from within) will be made of two steel shells enclosing a cement-impregnated, kraft-paper core filled with vermiculite. Exterior surfaces will be enameled and inner facings will be bonderized.

Mannesmann's architectural department, headed by H. Knothe, designed the curtain wall in collaboration with Bettinger engineers.







St. Louis School
(see acrosspage)

Flashing Fluorescent

For the first time, 40-watt rapid-start fluorescent lamps will flash on and off. Flashing has been made possible by General Electric's new circuit design involving continuous heating of lamp cathodes while current is switched on and off. This development will permit new animation for translucent signs. Besides standard and de-luxe whites, red, gold, green, blue, and deep-blue colors are available.

Financial News

by William Hurd Hillyer

The fateful ides of March have come and gone, without impact of the economic disaster feared by certain soothsayers. However, April's inconstant skies disclose signs that are dampening the ardor of many meliorists. For the first time in half a dozen years, some banking authorities confess that there are two divergent views of the outlook, neither of which they definitely adopt.

Since all quarters concede that the remainder of '56 will be a time of directional changes closely affecting construction and architecture, a briefing of this double approach as set forth by the Federal Reserve Bank of Kansas City is profitable. The "optimistic" side is first presented. The bank notes an increase in the average one-family dwelling from 1140 sq ft in 1954 to 1170 in '55, plus the inclusion of more appliances, such as washers and air conditioners. Resultant cost increase of about $1400 in the median new home price is expected to more than absorb a numerical downturn and lift the dollar outlay on housing by some 2% over 1955. Other hopeful factors include: Gross national product rising to an estimated $410 billions annually; plant and equipment expenditures at a projected $32 billions for '56; substantial backlog of industrial orders, with markets expanding; reversal of Federal downbeat.

The "pessimistic" angle reveals, as principal sources of hazard, a lessening rate of residential construction, growth of consumer and mortgage debt, inventory behavior, declining sales and production of automobiles, difficult farm-income situation. As a general conclusion, the Kansas City Federal Reserve maintains that dour forecasts are typically "qualitative," and that "quantitative" signficance cannot easily be attached to each factor.

Frankly cheerful is the Federal Reserve Bank of Chicago. Admitting that "some of the steam has gone out of the business boom," the Midwest "Fed" avers that no sharp decline in the current high-level business pace is sighted. On the other hand, "impressive sources of strength" are discoverable. This outlook is shared by the Federal Reserve Bank of San Francisco, which considers the situation "highly favorable" despite evidences of a slowdown in business expansion and a marked residential construction decrease. The bank feels that such downward movement may be reversed by the uplift of improved FHA-VA mortgage terms.

Certain commercial banks of large caliber are likewise stressing reassurance. The advance in over-all production and trade has come to a halt, New York's largest national bank admits; but there are few indications of a decline, and the downcurve in housing construction is "flattening out." The Guaranty Trust Company of New York, after due recognition of prevailing "cross-currents," opines that the sharp quarterly rise in personal saving may mean that consumer attitudes have begun shift toward restraint.

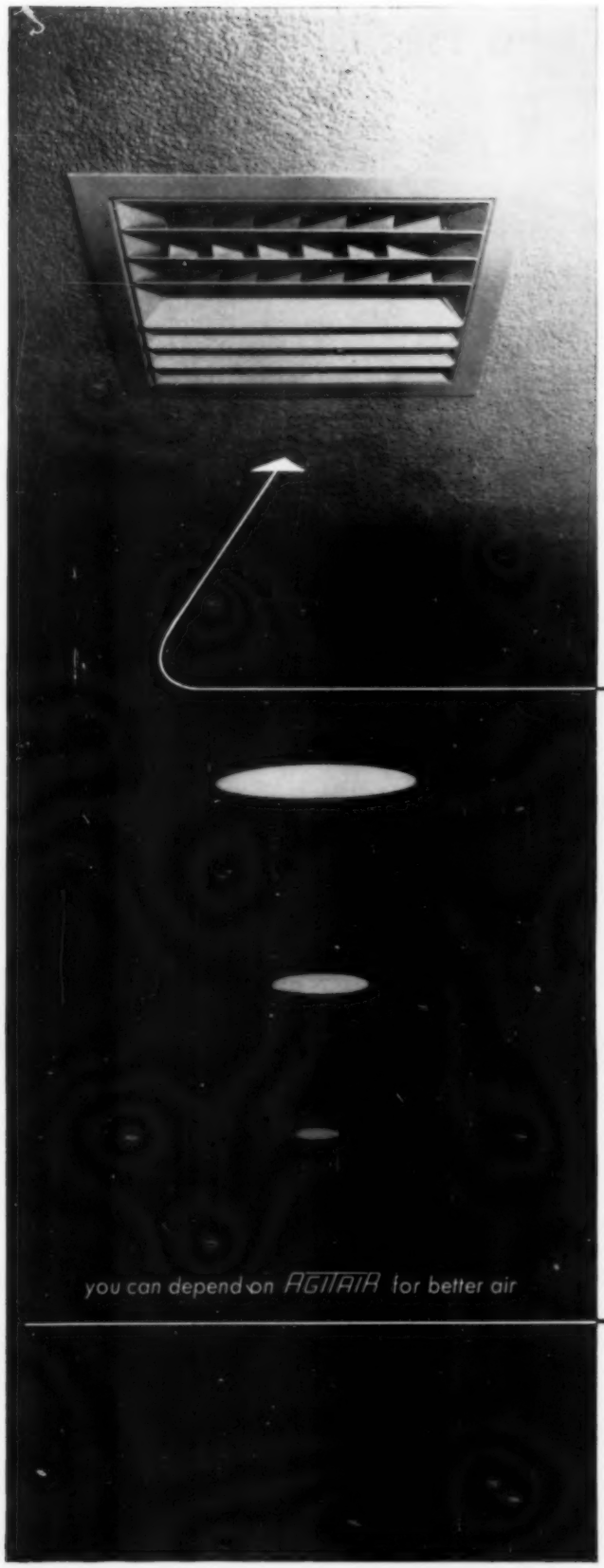
• Residential building standards will be substantially raised if a nationwide drive—launched this month by the U.S. Savings & Loan League—is successful. The undertaking is part of that organization's program to celebrate the 125th anniversary of the savings-and-loan business. Its avowed purpose is to improve the quality of new construction financed by savings and loan associations, which furnish 38% of all home buying money.

"It is the job of the architect," asserts U.S. Savings & Loan League's Walter Dreier, president, to find continually new and advantageous living space in the homes that are built under rapidly changing conditions. Dreier calls for a "complete re-examination" of building programs, now that the postwar housing shortage has disappeared. He maintains that tomorrow's buyers of new houses will be for the most part families that have paid off their mortgages or built up substantial equities in their present domiciles. For the benefit of these discriminating purchasers, the USS&L president declares that new privately built houses will require new ideas, designs, interiors, all with engineering features abreast of the latest technological advances.

• A $10-billions market for residential remodeling and repair during 1956 is envisioned by the special committee formed under U.S. Chamber of Commerce sponsorship and Government blessing, to encourage home improvement. The committee includes manufacturers, dealers, builders, lenders, who are said to be in conference nationwide, formulating a sales program under the caption "56—The Year to Fix." Most of the contracts are expected to cost more than $1000 and a great many will require architectural services.

• Shopping centers as branch-bank sites are the latest subjects of official scrutiny. Standards have been set up by the New York State Superintendent of Banks to evaluate requests for branch-bank locations therein. These standards include over-all dimensions of shopping center; size of buildings, extent of remaining area and parking accommodations; property zoning; available water, sewer, electricity. Does the developer own the land? Has financing of this center been arranged? Have plans been filed? Has contract been let for the center, and if so, when will excavation begin and what date is set for completion? Details of signed leases are targets of inquiry. The New York Banking Department proposes to charge a $250 fee for exploring these questions on behalf of applicants. For clients toying with the idea of building in a shopping center, architects might find data along such lines of use, no matter what the client's business project.

• As the year progresses, "mild adjustment" is ticketed by a leading credit and financial authority as a small price to pay for free enterprise. "No doubt in modern days," says Executive Vice-President H. H. Heimann of the National Association of Credit Men, "we can reach the objective of preventing what might be called a business disaster" comparable to that experienced in 1929. "That we can acquire perpetual prosperity, however, is most doubtful."



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the architect and his community

With the exception of Mrs. Price, all the architecturally trained members of the staff appear in photo (left to right): Robert Waring; Donald Seifert; James Jacobs; R.B.P.; Art Forbes; and Robert Jones, Associate.

Their community: Tacoma—"Gateway to Rainier National Park"; population: 156,000; important sea and rail terminal, manufacturing center, and recreation crossroads.

Air photo: Harry R. Boersig; Courtesy of Tacoma Chamber of Commerce

Robert Billsbrough Price: Tacoma, Washington

For nine years now P/A has periodically published "The Architect and His Community" series—reports on architectural firms whose practices in their localities have been (1) consistently distinguished in design and (2) of the widest diversification. We have reported on the work of small offices in small communities and large, established firms in major cities. The office of Robert Billsbrough Price—less than seven years old—is the youngest firm we have documented to date.

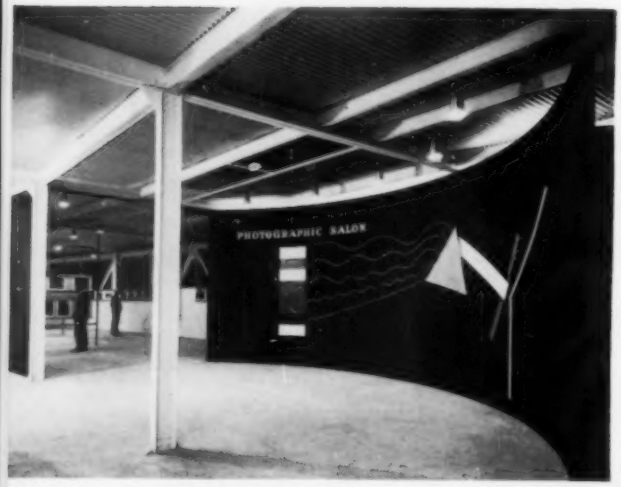
Price's background includes schooling at the College of Puget Sound; study of architecture at the University of Washington; a Lieutenancy in the USNR Air Corps, with service in England, Pearl Harbor, Australia, India, and China; and an M.A. degree from the Massachusetts Institute of Technology (1948). Before opening his own office late in 1949, he worked in the offices of others as both draftsman and designer. His wife, Joan A. Price (B. Arch., U. of Wash., 1947) has worked with him from the start. "However," Price tells us, "the raising of a family has slowed this department some."

Among Price's distinctions and affiliations are former Presidency of the Tacoma Society of Architects; Corporate Member of the American Institute of Architects; former Board Member of the Washington State Chapter of AIA; Board Member of the Southwest Washington Chapter, AIA; Member of the National Committee of AIA Department of Education and Research; Member of the Tacoma Chamber of Commerce; past Presidency of the Tacoma Art League; and Member of the Tacoma Building Code Committee.

Choice of Tacoma as the location for his office was an obvious one for Price. It was his home, and "my belief was that the advantages were as great here as elsewhere. I love the country; many of my school and college friends live there . . . I have not regretted my decision."

Photos: Dearborn-Massar

the architect and his community: Robert Billsbrough Price



Exhibition space: Western Washington Fair

Restaurant: Puyallup, Washington

Christian Science Church: Olympia, Washington

"Service—architectural service," Price says, is the basis of his practice and philosophy. "To every client we try to give our very best. We do no pot boilers. If we take a job, it is with the understanding that to that individual it is the most important commission in the office." This attitude, he feels, not only makes each job more interesting, but also makes friends. "Without staunch and loyal friends for whom we have done work (who are also our public-relations spokesmen), we would soon dry up."

As to design itself, "I do not subscribe to any one school of thought. My personal belief is, that is the easy way out. To become simply a disciple of one of the 'greats' has no merit, much as I may admire and appreciate his work." For his own convictions, Price feels particularly indebted to Lionel Pries of Washington and Gyorgy Kepes, of MIT.

"I believe that no client ever made an architect do a bad job," Price comments. "No client made us use bad proportions or work out a poor *parti*, etc. Some jobs turn out better than others, of course. For those that don't, I blame myself."

Price sees the architect as "one of a group of specialists. Because of his position as originator, conceiving the solution of the problem, he should act as co-ordinator." However, he views practice as far from a one-man show, rather as a team including the structural engineer, the electrical engineer, the acoustical engineer, landscape architect, artist, and sculptor. "If these consultants can be inspired to go beyond the problem and be made to feel they are contributing not only their part but also toward the success of all other phases of the problem, the job has a much better chance of being a really fine project." And this most certainly applies to the draftsmen, too. "This feeling should extend to the sheet composition of the drawings and into the wording of the specifications. . . . All should be made to feel responsibility for every detail."

In addition to Price himself, the firm consists of six architecturally trained persons and a secretary-receptionist. Usually Price develops preliminaries himself. Thereafter, he makes no effort to define

The Sherman Elementary School (top) *in Tacoma is one of several schools the Price firm has designed (at the moment they have four in the office). Photo shows the kindergarten first-grade play court with its highly decorative roofed shelter. Construction of the school employs prestressed-concrete beams; precast-concrete columns; precast-concrete spandrels; and manufactured, long-span, acoustically treated steel roof decking. Superintendent in charge of construction was James A. Hopkins.*

The Ginkgo Museum (right) *in Washington's Ginkgo Petrified Forest houses displays of stone relics of the Ginkgo trees that grew on the site prior to the ice age. Associated with Price was Carver L. Baker, Architect for the State Parks Commission.*

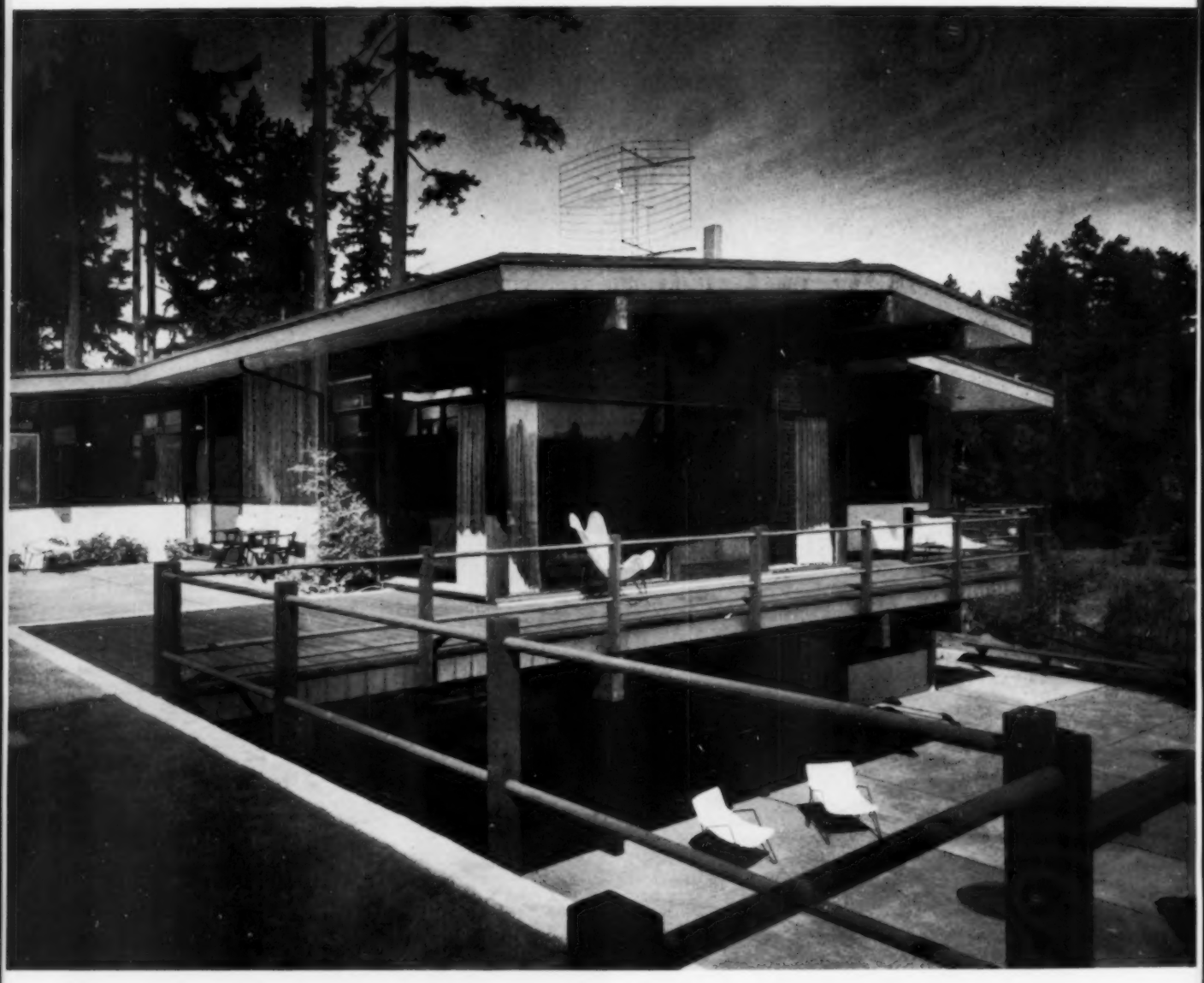
duties, though one man usually follows the job through. "We make it a practice to work very closely with the contractor and subcontractors, not only on the job but also during the actual designing. If there is one myth we wish to dispel, it's the 'Architect in the ivory tower.'"

Preliminary drawings are kept very rough. Consultants—sometimes the entire office force—are called in and "we hash the whole program over. . . . Only when we have arrived at what we believe to be the very best solution, do we make our presentation to the client."

Currently the firm has about $4,672,000 of work under way. "This is more than ever before, and yet the coming year looks better than this." Asked whether he would prefer more specialization, Price replied: "I'd like it to continue just the way it has been going. We have plenty of diversity and . . . I do not wish to specialize. I believe this is the surest way in the world to get into a rut."

the architect and his community: Robert Billsbrough Price

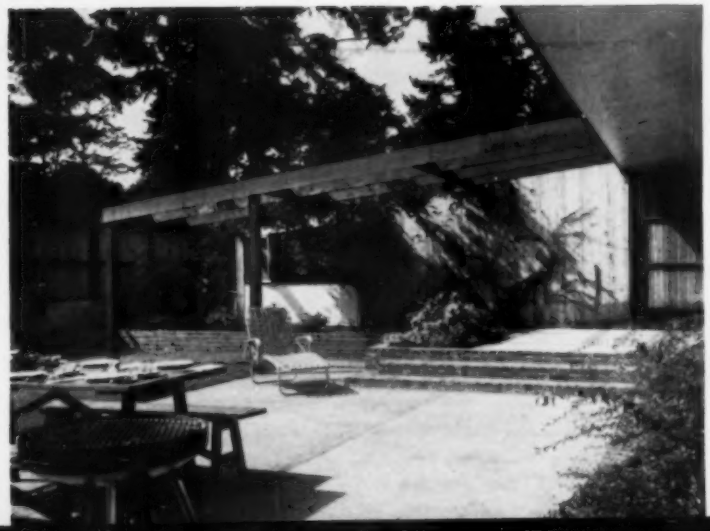
house

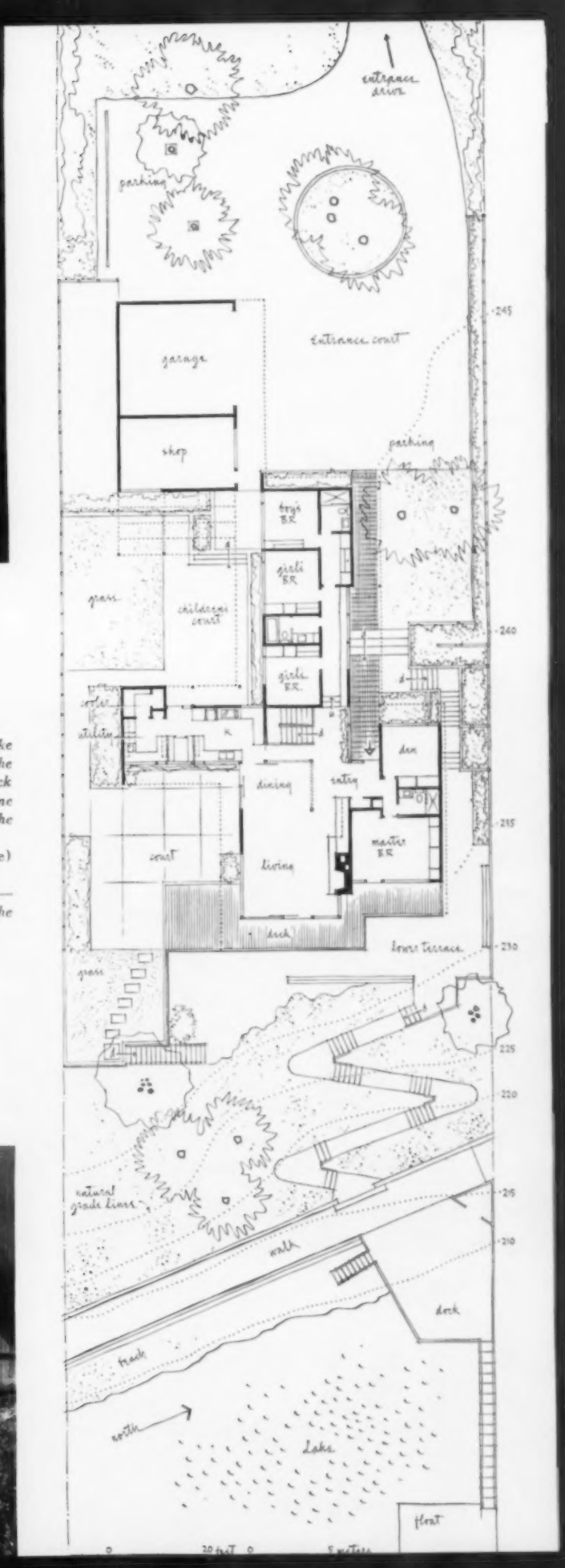


A long, narrow strip of wooded land that falls away to the east some 35 feet to the shore of American Lake and a distant view of Mount Rainier was a governing factor in the design of this Tacoma home of parents, two young girls, and a boy of high-school age. No small part of its harmonious relation to site derives from the fact that Lawrence Halprin, Landscape Architect, worked from the start with Price and Associate Robert M. Jones. "This is as it always should be," Price comments.

The house was placed as near the lake as the slope would allow, to make the water view a daily part of living and so that the children, even when on the swimming float below, could be supervised from the house. Because much of the family's interest centers around the children and their friends, a complete area on the basement level (*not shown*) was designed for their use, including a recreation room and shower and dressing facilities. In addition, notice the children's bedroom wing that overlooks the sheltered, south-facing inner court. The extraordinary kitchen/utility/eating wing of the house forms one wall of this court enclosure.

Framing consists of laminated columns and beams, with 2″x8″ joists covered by plywood roof sheathing and built-up roofing. Exterior siding is rough-sawn cedar, with accent panels of pale-yellow, plastic-surfaced plywood. Sash, decking, posts, etc., are redwood. Heating is by oil-fired boiler, with baseboard radiation, chiefly, and some wall-mounted convectors.





Extension of the side yard beyond the house, toward the lake (acrosspage), *is a design element for which Price gives the landscape architect full credit. "This enables one to look back at the house," he remarks, "a suggestion that made the scheme much better in my estimation." The lower terrace adjoins the children's recreation room.*

The glazed and planted corner of the entrance hall (above) *offers a view of the stepped up entrance walk.*

The inner court (below) *provides privacy and enclosure—sometimes a welcome change from the extreme openness of the view side of the house.*

From the forward deck adjoining the living/dining wing of the house (above), the view of the lake and distant shore is an everyday experience for this fortunate family.

Even the kitchen sink (left) commands a serene outlook across the terrace to the water beyond.

A specially fitted sewing corne (below) occupies a portion of the kitchen/eating/utility room, whose functional elements are separated by low storage-and-work units or ceiling-hung cabinets.

house

The house interiors were developed by Ted Herreid, who, Price observes, "did a very fine job." General Contractor was Swen Johnson.

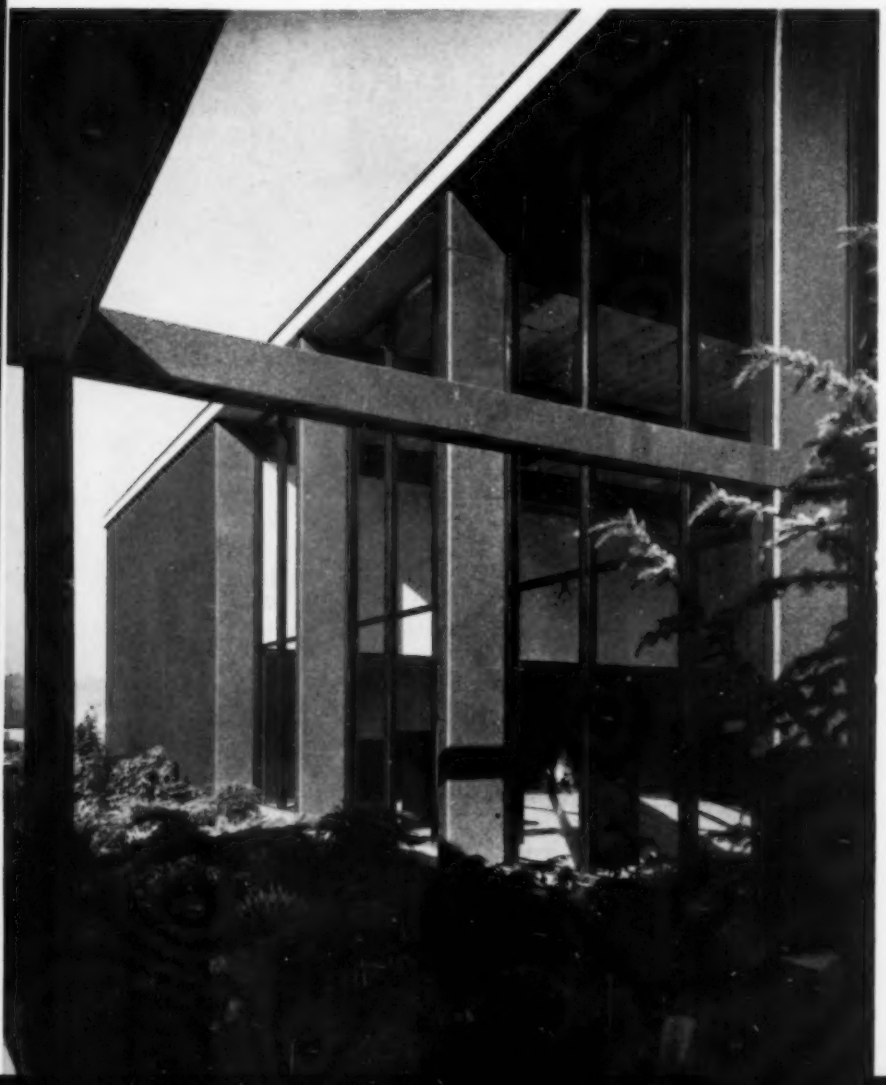
bank

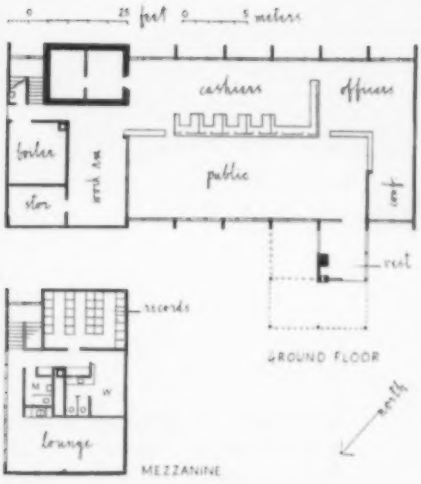
The basic program for this Industrial Branch of the National Bank of Washington called for a bank of approximately 2800 square feet with the customary administrative and service facilities, plus a work area that would be readily accessible but screened from public view. The corner site, in the center of Tacoma's rapidly expanding manufacturing area, was anything but routine, for it consisted of reclaimed tideland with the water table less than three feet below the surface. From this condition derives not only the unusual structural scheming but the finished design expression as well.

The choice was between an expensive system of piling or—the system selected—"floating" the building. To avoid differential settlement within the building, the floor slab is designed as a two-way, reinforced-concrete mat 12 in. thick, increasing to 18 in. under the vault. All building loads are carried to the perimeter of the slab, and weight is distributed over the entire building area.

With the exception of solid walls, all of the concrete structure was factory produced, either precast or prestressed. To resist transverse seismic forces, the main frames are treated as rigid bents. Joints between precast column and prestressed roof beams are moment resisting—accomplished by making beam lengths equal to the clear span between columns plus half the column depth.

The structural frame is a dark red-brown; the spandrels, white. Inside, exposed roof slabs are white, and pumpkin is used as a color accent. The end walls are surfaced with perforated, pressed-wood paneling over 1½-lb-density, glass-fiber, acoustical blanket. Heating is by a hot-air perimeter system. Associated with Price on the job were Dr. Arthur Anderson, Structural Engineer; Earl P. Whitson, Mechanical Engineer; and Walter S. Gordon, Electrical Engineer. Concrete Engineering Company was General Contractor.





the architect and his community: Robert Billsbrough Price

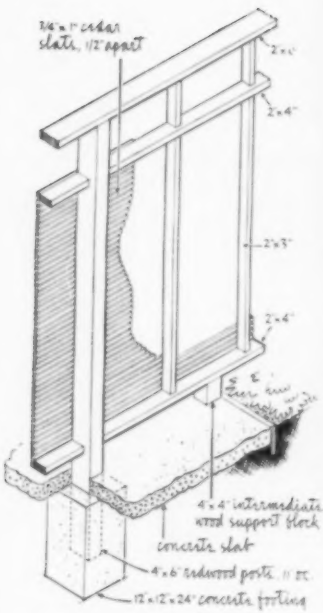
fire station

Undoubtedly the prime requirement for a fire station, other than provision of the different spaces needed, is for rapid access to the engines and trucks, wherever the men may be when an alarm occurs. And here, it will be noted, doors to the apparatus room (for a 1000-gallon pumper and 75-ft aerial ladder truck) open directly from the living/dining area, the locker-room/bath unit, and the dormitory. Accommodations were required for a crew of eighteen men and six officers, with six men and two officers on duty at all times. For desired sunlight, the living spaces—treated as a single area with only partial subdivisions—face south. For privacy, a slatted fence borders the sidewalk and defines a pleasant paved and landscaped entrance court. The men's dormitory and officers' room are placed toward the rear, away from street noise. And a hose-drying tower occurs in easy proximity to the apparatus room as well as providing a vertical design element. At the back of the building is a tinkering and parking area for the men's own cars.

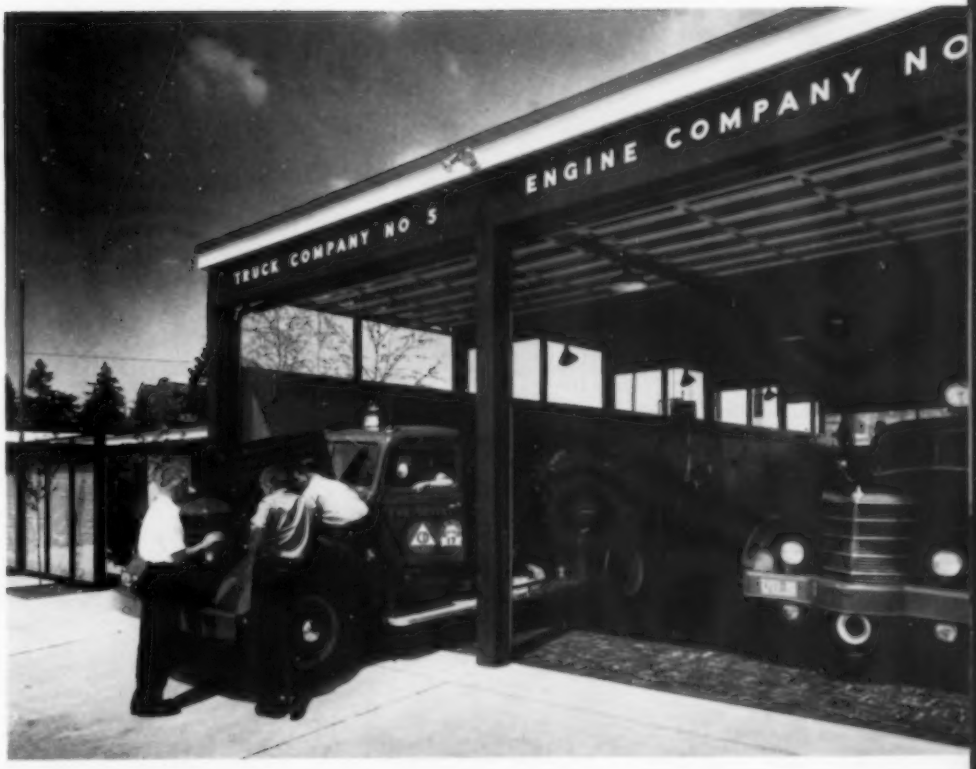
Structurally, the building consists of a concrete slab, laminated beams supported on laminated columns, and a dead-flat roof of 2″x6″ joists with plywood sheathing. Price comments that he chose the flat-roof form "for simplicity of construction and because it allowed the three levels to read honestly in elevation." A double skin of plywood provides diagonal strength. The hose-drying tower has walls of plastic-surfaced plywood over plywood sheathing.

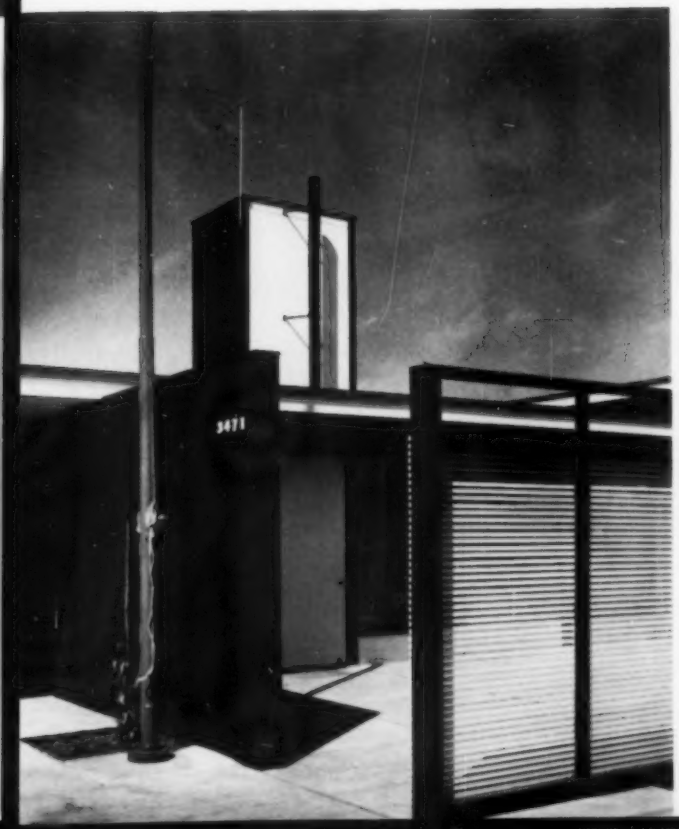
Heating of the building is from a hot-water system, with baseboard units for most of the job and radiant panels under the fire trucks to keep them warm for quick winter starts.

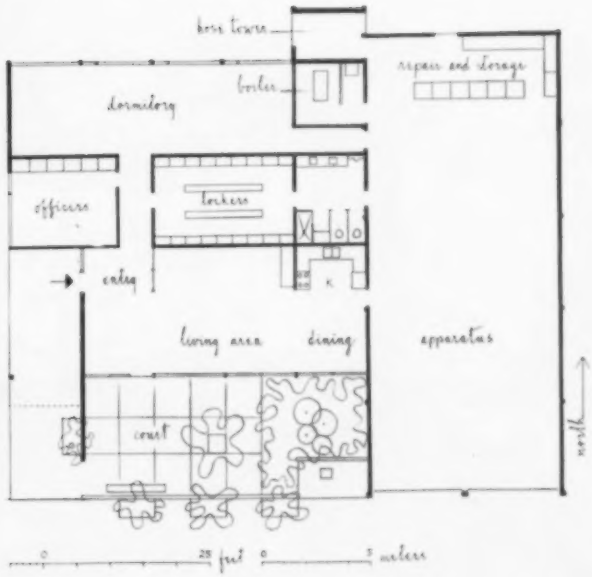
Color is an important aspect of the design. All exterior plywood, beams, columns, and sash are stained black-brown. Cement-plaster wall panels and panels of plastic-faced plywood are white. Accent colors include Chinese red, pale yellow, blue, and black.



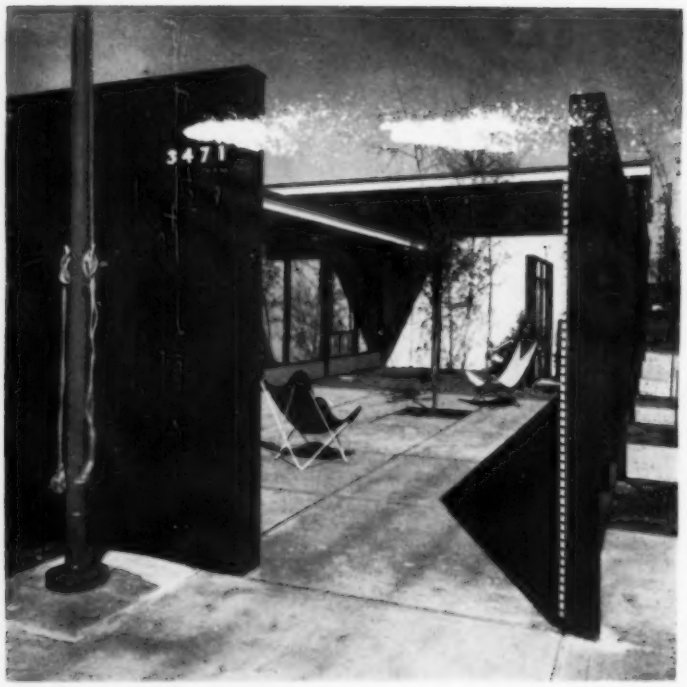
FENCE DETAIL





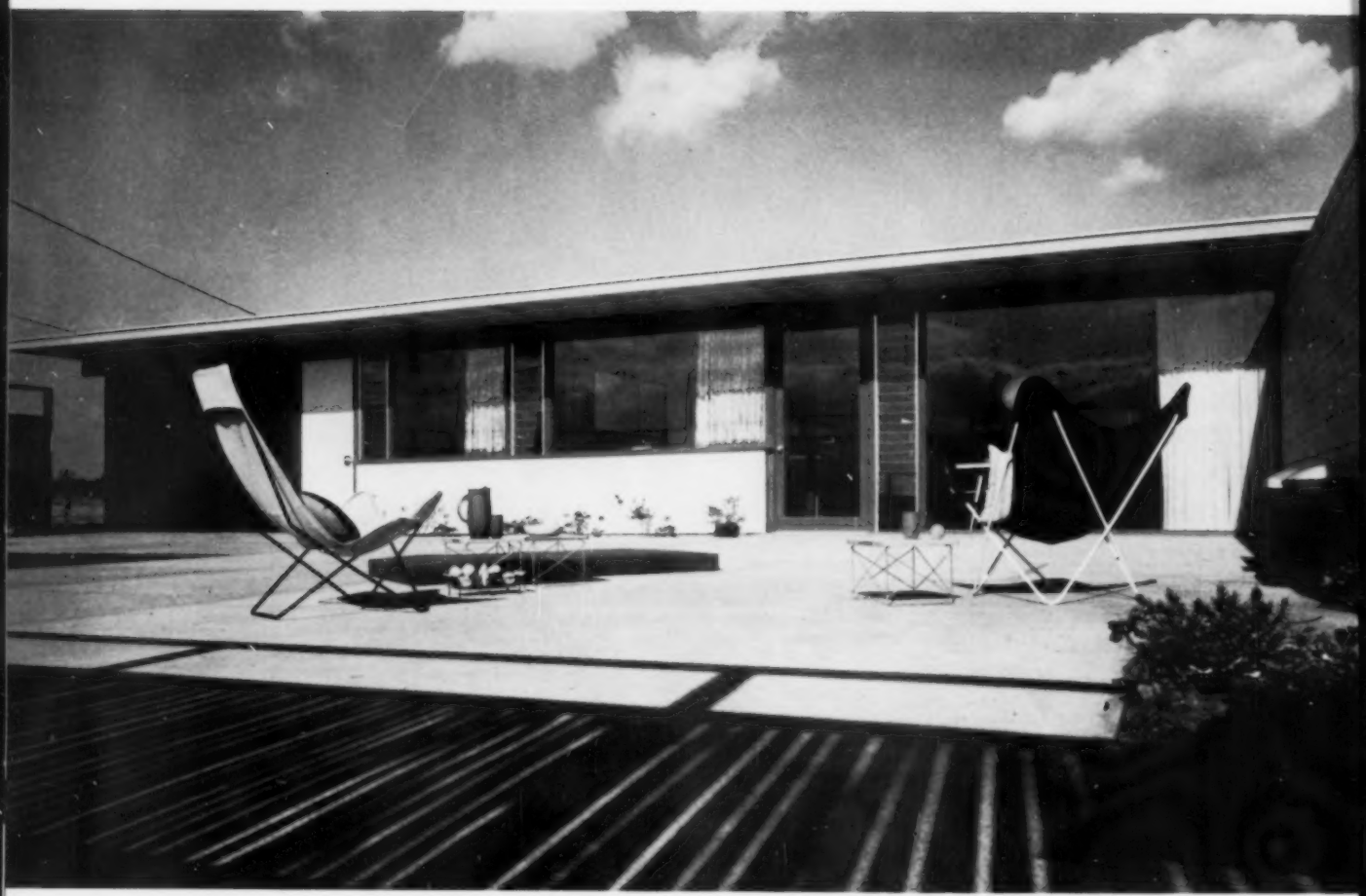


fire station



the architect and his community: Robert Billsbrough Price

builder house



The only strings attached to this house designed for the Tacoma Master Builders were: (1) that it be a familiar type of construction; (2) employ locally available materials; and (3) be able to compete in price with other builder houses of similar size. Built on a typical corner, subdivision lot, the house is planned for a young couple with two children. In spirit, Price says, "the house is one I had hoped to design for a long time . . . I endeavored to prove that a builder could construct a competitive house that a young family would buy, not only because they liked the house but also because, cost-wise, it was something better than was being offered."

The plan is a simple rectangle with a double carport off the entrance way and a fenced court on the opposite side, providing privacy for all areas despite the open plan. The living/dining area is separated by a central kitchen from the all-purpose space (including the children's bedrooms, which are partitioned by colorful, plastic, folding doors). In fact, the only wholly closed-off space in the house is the master bedroom suite.

Joan A. Price handled interiors; Sherman Rowland was General Contractor.

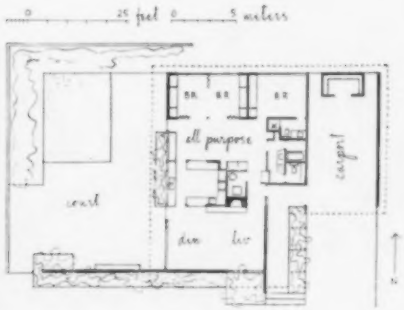


Photo: Dearborn-Massar for Family Circle

the architect and his community: Robert Billsbrough Price

builder house

The fireplace and heater room are located back to back, for efficient use of the single chimney.

From the kitchen "control center" (right), indoor or outdoor meals are served with equal ease.

Basic construction is of 4"x4" posts supporting 4"x10" beams, with a 5' module in the east-west direction and 5'-6", north and south. Plank roofing is also the finished ceiling. Exterior wall surfaces are stained, textured plywood; unpainted pumice block; or painted, overlay plywood. The heating system is perimeter warm air. Cost of the house: $17,500.

Extension of the house wall beyond the building both provides privacy and greatly increases the apparent living area. Flooring throughout is all-over, white, confetti-patterned asphalt tile, selected "to give continuity and a feeling of space."

architecture and the democratic community

Walter P. Reuther

I should like on behalf of the members of the Detroit Citizens Redevelopment Committee, now the Citizens Redevelopment Corporation, to extend our hearty congratulations to the three architects who labored hard in the vineyards to make the planning design for the Gratiot-Orleans project possible: Mr. Gruen, Mr. Yamasaki, and Mr. Stonorov.

They brought to this project not only high technical competence, but I think perhaps what is the most important ingredient to this kind of undertaking, and that is a high sense of social responsibility; because architecture unrelated to the basic needs of a free people will fail to meet or serve its basic purposes. I believe they came to this project not to earn an attractive fee, but to share in a joint effort of trying to create a new neighborhood in the core of Detroit. They, like the committee, realized that this problem of our decaying cities is one of the most challenging problems we face in America.

I want to congratulate the members of the Jury, because they came to the same conclusions as our committee. We thought this a mighty fine beginning of a redevelopment plan in the center of Detroit.

There are a number of things that I think are significant here, that bear pointing out. First of all, we in Detroit realize that the automotive industry has given the American people a kind of new freedom, freedom of great mobility, and that that mobility, exercised by millions of people in our country, has created a new problem: as the cities begin to decay at their core people seek to escape by escaping the cities, but they leave the problems behind to be solved.

Cities represent tremendous investments in the way of schools and churches and utilities and commercial establishments and many other things. The problem is to meet the challenge of decay at the core. How can we preserve the great cities as cultural centers and yet make them compatible with this new freedom of mobility?

We came to the conclusion that the only way you could resist the trend to escape the cities was to provide within the core of the city a wholesome, healthy, attractive neighborhood that could give people the things they ran out of the city to find, to provide those things in the city in close accessibility to the cultural advantages that the big city offered.

We started out, not just to redevelop a land area which has been cleared, in which the slum property has been torn down, just for the sake of building new buildings on that land area. We believe that too often slums are torn down only to be replaced by more modern slums. A community is more than just buildings; it is a total climate. There is a kind of intangible value you have to put into these communities to make them attractive and to get people to be willing to move into them.

The first important lesson we learned was that this problem of redeveloping the cores of our cities was not something that people generally could leave to your profession, that this problem of slums and decay was the problem of all the citizens of any metropolitan city.

I had the task first of approaching some of the executives in the automotive industry. When I said that this project was part of their responsibility they pointed out that this was not their business, and they made passenger cars and trucks and they knew nothing about this. I pointed out that clearing the slums and wiping out the social cesspools of the great cities was the problem of all of our citizens. We then began to pull together as a functioning, co-operative citizens group, making the clearing of slums and redeveloping of our city the responsibility of the whole community.

I think that is the first and important lesson. You have to make people in every walk of life realize that this challenge of slums and decay is the problem of everyone. If we are going to make our cities the kind of places in which people will want to live and raise their families, cities that symbolize the highest aspects and aspirations of free men, then we have to work at it together.

We pointed out that too often the very people who criticize governmental action in the field of city redevelopment make government intervention a necessity by their unwillingness to assume their share of the responsibility and by their failure to participate on a voluntary basis.

Second, we did not want to build a new slum. We want really to wipe out the slum for keeps. We said that somehow we had to get away from the concept of replacing old slums with new ghettos. We had to take into consideration in the site planning the fact that adjacent to this land area there was contemplated the construction of public housing—I think, 3800 units.

We then made the basic approach that we break up these large public housing groups into smaller groups and begin to find a pattern by which public housing could be integrated into middle-income housing. One of the reasons people who live in middle-income areas have resisted public housing is because we tend to drop a huge block of public housing near a good neighborhood, and then the lower standards of the public housing tend to drag down the higher standards of the middle-income housing.

We said, if we can break up the large public housing blocks and integrate small groups of public housing in a middle-income neighborhood, instead of the public housing dragging down the higher standards, the higher standards will have the positive impact of *raising* the standards of the public housing.

The basic concept is important here, because it can be the key to the third important question: How can we build by redevelopment in the cores of our cities, not new ghettos, but wholesome, balanced neighborhoods, balanced economically and integrated racially? Look around the cities in America and you will find that most of them are developing a new ghetto at the core. We believe that this is un-American and anti-democratic in its basic concept.

We are going to see this through because of the challenge we believe we face in the world of proving to the rest of the world that America knows how to meet the problem of narrowing the gap that exists in America between American democracy's noble promises and its ugly performance in the field of race relations.

We know that somewhere, some place, we have to break through the old pattern; we have to begin to find a way to build a racially integrated neighborhood.

We think this can be done.

We think there is enough good will, there is enough common sense, there is enough common dedication and determination in Detroit to point the way. We believe that if we can do it in this particular neighborhood, there are many other areas of Detroit where our committee can apply the same lesson and the same basic approach.

We are greatly honored that PROGRESSIVE ARCHITECTURE and its Jury have given this recognition to our project. We hope that what we do here can inspire other people in other cities to take on this practical task of redeveloping the decaying cores of our cities.

We think it can be done. We think that the neighborhood that we are going to create in this land area will be as attractive as any other area in greater metropolitan Detroit. We believe that all kinds of Americans will move in there; that white and black can live together and raise their children in the kind of democratic community that America ought to symbolize in this very troubled world.

Reproduced on these pages are two talks heard at the P/A Design Awards dinner in Detroit, January 20. Speaking for the client group was Walter P. Reuther, Head of the Industrial Union Department, AFL-CIO. Representing the Jury was Pietro Belluschi, Dean of the School of Architecture and Planning, MIT. Springboard for both talks was the Gratiot-Orleans Urban Redevelopment project in Detroit, First Design Award Winner.

Pietro Belluschi

Having had considerable first-hand experience in the ways of juries, I would not be inclined to view their decisions as being always made in Olympian all-knowing equanimity. Even with all the time and knowledge at its disposal, it is a most difficult thing for a jury to be free from prejudices—personal prejudices and those of the age in which we live. The mental picture of our world is distorted in various degrees by images imposed by custom. National culture itself is composed of prejudices; they are an intrinsic part of human nature, and it would be not only difficult but undesirable as well for a jury to be wholly free of them. To have pre-established notions of what is appropriate in Art or Architecture or Music means that at any given time certain trends or certain moods or ways of seeing and feeling have entered the consciousness of the social and professional body and left a mark thereon.

To ask a representative group of men to sit in judgment is to ask them, within their limitations, to reassess, to note what progress or lack of progress has taken place; it means that standards are brought up to date, new controls established, and public opinion shaped in such a way as to act as useful restraint against capricious license, arbitrary fashion, and the damaging abuses of mediocrities. At the same time, by their verdicts they make change possible and acceptable. One may presume that while works of men of great talent prevent stagnation, and by their uniqueness stimulate innovation, the vast majority of works must be contained, or rather restrained, within the great body of public opinion and acceptance.

Some of my individualistic friends will be outraged by these statements, but they will possibly agree that there must be a way to preserve continuity, if sound evolution is our goal. But if that is so, it is essential that our output be constantly and critically re-examined to be sure it expresses the social, moral, and esthetic philosophy of our age, and has not become a stale and sterile attitude of mind. I believe award programs such as these and others of similar nature are in a sense milestones in our historical course and one of the means by which tradition is made, and for this we owe our thanks to the Editors of PROGRESSIVE ARCHITECTURE for their wisdom and generosity.

If you will allow the Jury then refuge behind its shortcomings, but with a deep sense of the importance of its duty, it will report a great satisfaction, even elation, on what has been shown in this year's award submissions. We all felt that even more significant than the actual quality of the winning entries were the signs in almost all works of great maturity, of real understanding of what architecture is meant to be in our society. If there were any doubts in the past about whether our profession was prepared to rise to the challenge of our age, a challenge of unprecedented dimensions and form, such doubts may now be dispelled.

A new world is in the making, and the architect is now ready to be among those who give it shape. As we look back at the events of the last few decades, we begin to see how our struggle against dogmas and style revivals with all their apparent narrowness was really but a prelude, a clearing the decks, so to speak, for a vastly more important task —that of reshaping our environment in enlightened freedom. Now our main worry is no longer style as such, important as it may be to achieve individual quality, but a fresh interpretation in physical terms of our own civilization. From the top winning design for the renewal of part of Detroit and from many other projects, premiated tonight, we are finding that architecture is more than a superficial concern for style—it is becoming indeed a way of life. As an art, it is now more clearly and forcibly directed toward a goal beyond mere form.

I have been criticized for having said, many years ago, that I believed great architecture, at least for our kind of society, would eventually come from the receptive soil of wide popular understanding. I still believe, and with greater conviction now, that we are witnessing the success which follows our attempts to show the public, by means stronger and more common than those evoked by pure esthetics, the reasons which have determined the forms, above all the values embodied in those forms.

It is of deep significance to me that Detroit, the world capital of the great automobile industry, an industry which has affected to an unbelievable degree the structure of our cities and changed the very scale of man's existence, would show the way toward a long range and imaginative solution to the ills which it has unwittingly produced in varying degrees in all cities of the civilized world. In America, the joint impact of prosperity and higher standards of living, together with the accelerating rate of obsolescence, much of it caused by the automobile, has all of a sudden opened up a fantastic panorama of what must be done; and the task, the enormous, endless task of rebuilding our cities, is beginning to emerge with great clarity. We are encouraged by what we have premiated to think that old mistakes will be avoided, that the leaders and the great body of citizens may have learned to face with confidence a great task to be achieved in harmonious collaboration, free of petty motives.

In the advent of this American Dream, the architects can and must have a key part. We all know the enormous cooperative efforts which go behind any of the large projects. We may well remind ourselves that the success of our way of life in this technological era is due to our having learned to work together, and the architect as a man of vision can no longer act alone in arrogant self-sufficiency but needs to know and be motivated by a large body of facts which only the specialists in many fields can gather and furnish him. Architects are beginning to acquire more receptive and flexible habits of mind; they are learning to observe and to weigh before rushing to a solution.

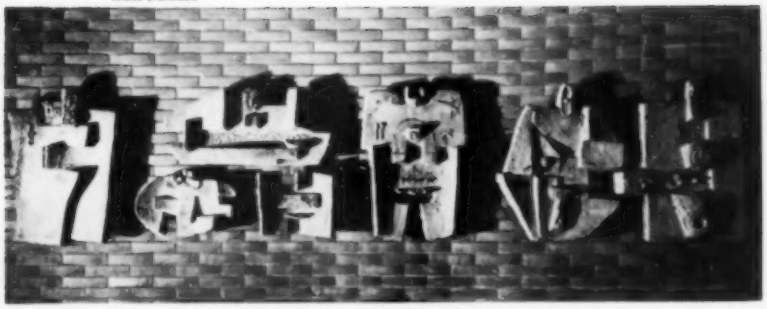
We may remember that while the men of genius may stimulate us, the great body of structures forming our cities is produced by earnest, intelligent, painstaking realists who, by their day-to-day effort, by their ability and willingness to be part of a team and to accept the realities of life, succeed in making their influence felt in the communal process of giving form to a healthier and happier society. The signs are here, and many of the entries submitted had social awareness or were community projects.

The buyer of architecture, more than ever before, is the corporate and not the individual client. Through the economic realities of the American system, architects are learning to make a virtue of what used to be a handicap. A greater concern for economy means now a wider distribution and therefore greater social impact. This may have been done at the expense of the highest standards, but it has resulted in a great raising of the lowest standards, in a greater sense of what is appropriate and important, in a greater logic of structures and in more thoughtful planning. But beyond these—even beyond proportions and good function and beauty—is an obvious acceptance of life in all its richness and variety, in its joy and complexity, a feeling of duty to rebuild, give physical order and meaning to our lives, a task to which all of us must give our best.

the work of COSTANTINO NIVOLA

Nivola's primary and principal concern as an artist is to make man's dwelling places and environment more stimulating and enjoyable. Like his ancestors who created ancient sculptures and constructions of Sardinia, he is remarkably talented in these arts. And like his forebears he is capable of creating visual drama out of the most primitive substances. "My sculptures," says Nivola, "are made of common materials—brick, concrete blocks, lime, plaster—using the natural elements—sunlight, water, sand." Nivola employs a mason's technique which was acquired through working with his father, a master mason, in Sardinia. Many of his pieces exhibit the imprint of this background, both artistically and technically. In discussing his work, Nivola pays tribute to still another master: "I learned from Le Corbusier to be conscious of the role every element must have in a plastic organization and its relation to architecture." In his unpretentious though exuberant and lively way, he has had great influence on latest architectural development. Many critics feel that Nivola has had an effect on the master himself—Le Corbusier, who has lately turned his attention away from the *machine à habiter* to such plastic expressions as the Chapel of Ronchamp or the High Court Building of Chandigarh. Nivola's latest and perhaps most significant pieces are constructions similar to the one shown in the process of assembly (*acrosspage*). The possibilities of these sectional sculptures, in which volumes are juxtaposed as in architecture, are unlimited and Nivola himself suggests, "My dream is to make them as big as buildings." This scale has been partially realized in the memorial fountain (page 119) and more fully in a design for his own house, to be shown in June 1956 P/A. In effect, one finds it difficult to tell where Nivola the sculptor leaves off and Nivola the architect begins.

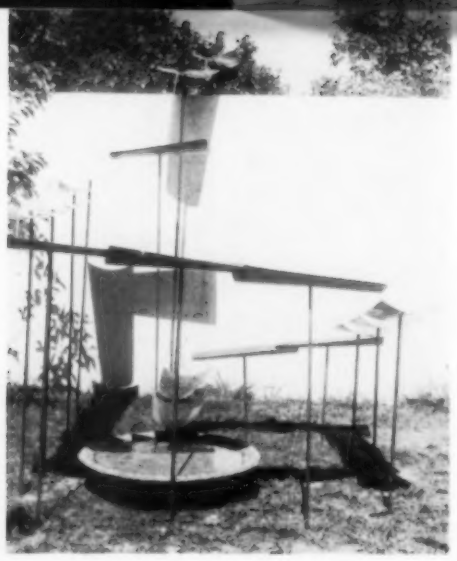
Hans Namuth

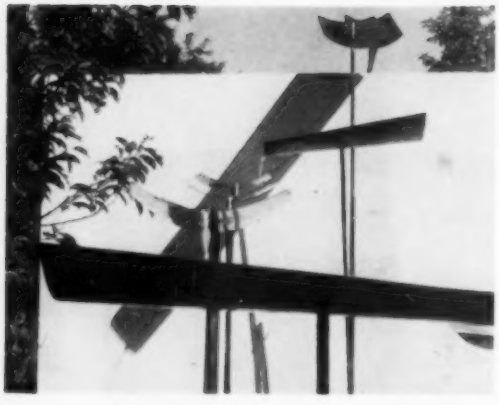


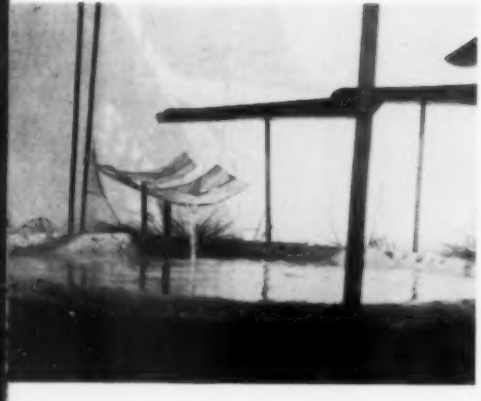
Free-standing garden wall (above) *defines one side of the entrance patio of a New York apartment house. Nivola's low reliefs of concrete, cast in sand, stand well out from the wall, their plastic quality thus emphasized. Earlier model* (acrosspage) *suggests a less pronounced background, perhaps more in keeping with the sculptured plaques.*

"Building blocks" (right) *are interlocking monolithic sections of built-up concrete which Nivola assembles like masonry. Toy figures suggest the monumental scale these constructions can assume.*

Photos (except as noted): Costantino Nivola

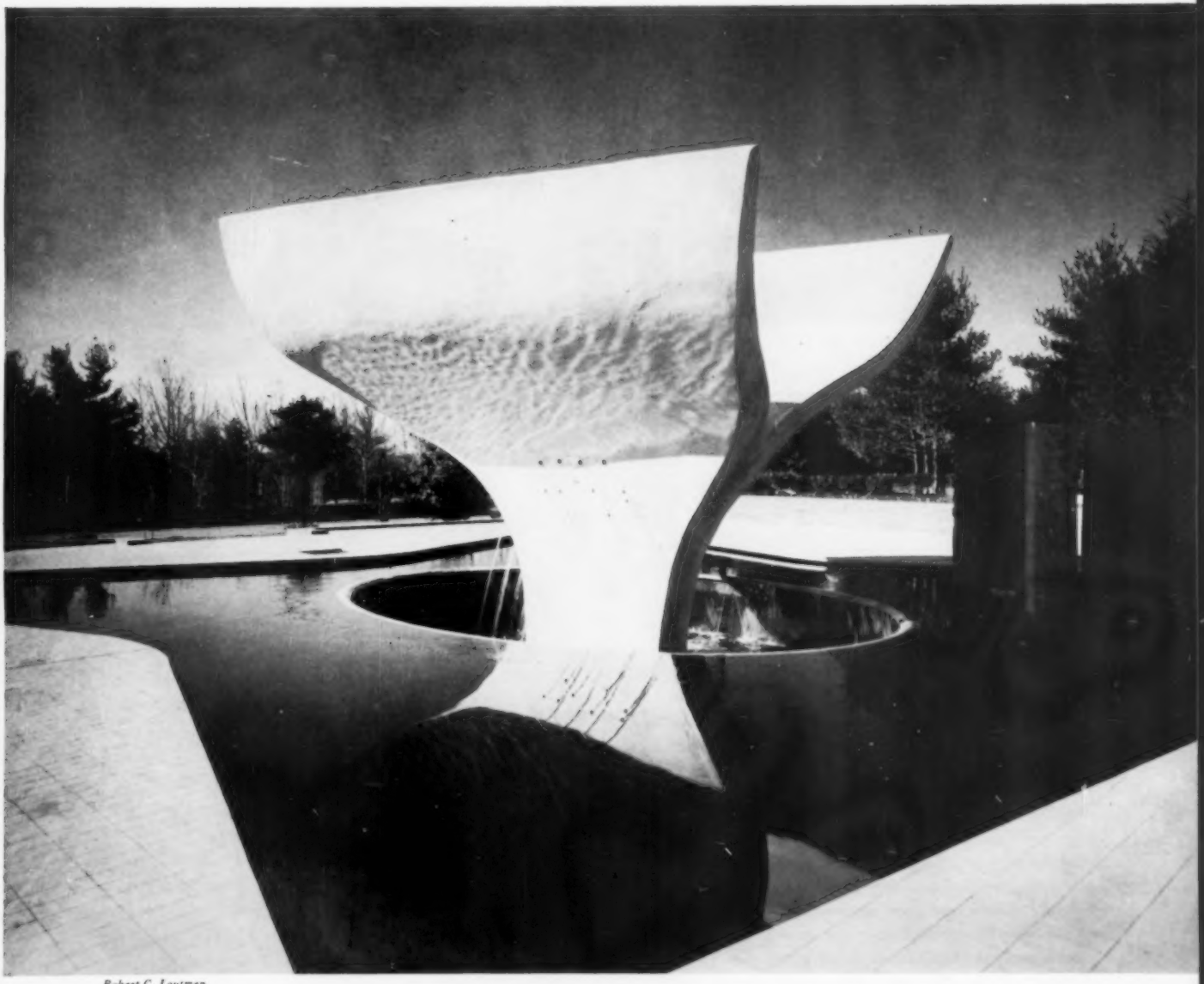






By the simplest means—with bent-brass sheeting and an assortment of slender brass rods—Nivola has fashioned an engaging and lively fountain (left and above) adaptable to anyone's garden. Water is brought up through the first stem, a hollow pipe; then it falls from one level to the next, introducing elements of movement and music into an otherwise static landscape. Different notes are sounded by varying the length of the stems.

Designed for a nonsectarian cemetery at Falls Church, Va., the Memorial Fountain, dedicated to the four chaplains who gave their lives in a wartime sea disaster, is one of Nivola's largest architectural sculptures. Again, it is an economically executed work using simple materials. Dominant element in the composition is a concrete form, a symbol of the sinking ship. Dark, star-shaped area (model right) *signifies the ocean; the oval in its center, the world beyond. It was the sculptor's original intention to build this oval of light and colorful tiles on various levels, symbolizing the eternal city to come, and also to give visitors a view down into it from the nearest point on the platform above. The four panels suspended above the level of the "ocean" are sculptured on one side only and fresco-colored on the other* (detail acrosspage bottom). *As the sun moves, each panel is lighted in turn and each color given emphasis.*



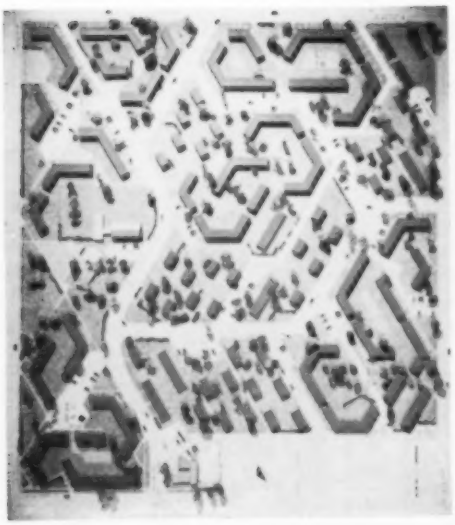
Robert C. Lautman

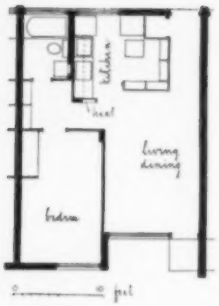
general practice: housing project

location	Pacoima, Los Angeles, California
associated architects	Arthur B. Gallion and Victor Gruen
landscape architect	Francis Dean

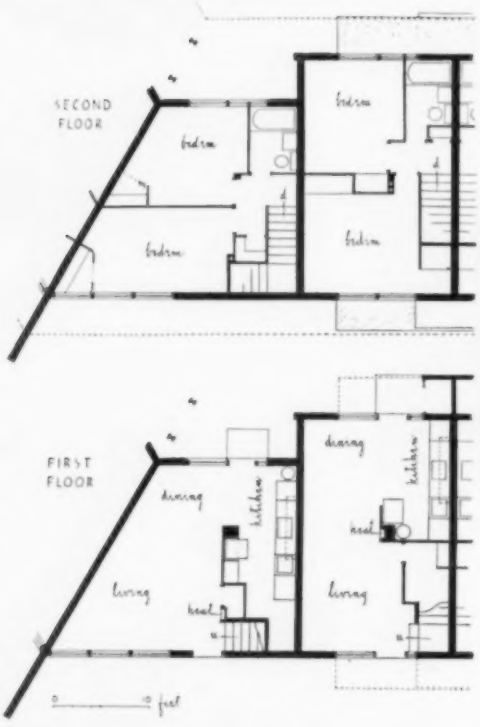
Completed since October, 1955, these housing units have already had a tremendous upgrading effect on the entire neighborhood. Not only have 175 substandard shacks, tents, and scrap-lumber shelters been replaced by 448 solid and comfortable living quarters; but also adjoining areas have been enlivened with new commercial buildings, and impetus been given to the start of five new subdivisions, housing close to 1000 families. One local authority states that property values have been increased by as much as 500 percent since the completion of these buildings. A major part of the credit for this vast improvement is due the architects who, despite a density of 15 families per acre, managed to retain low-rise buildings arranged in an orderly though informal fashion, with pleasant vistas and private terraces for all. Buildings have remained the same since P/A's publication in February, 1954, of this project in the design stages—predominantly one- and two-story row houses interspersed with two-family houses and angled buildings. Combined as a large composition, these assorted buildings achieve a feeling of unity without monotony, and a sense of spaciousness and lightness. Special thought was also given to the preservation of many beautiful trees which enhance the site immeasurably and set this project apart from the usually raw and barren appearance of newly completed housing developments. Subdued colors, used within the regular pattern of white-painted mullions, soffits, and fascias, add further to the attractiveness of the complex. Exterior walls are partly of lightweight-reinforced concrete blocks which have been painted and waterproofed. These masonry panels alternate with wood frames (*see* SELECTED DETAIL) which were assembled in the shop and erected by means of a special platform mounted on a truck. Edgardo Contini was Civil Engineer for these buildings; Bartlett & Berky, Mechanical-Electrical Engineers; and Richards Construction Company, General Contractor.

Photos: Julius Shulman

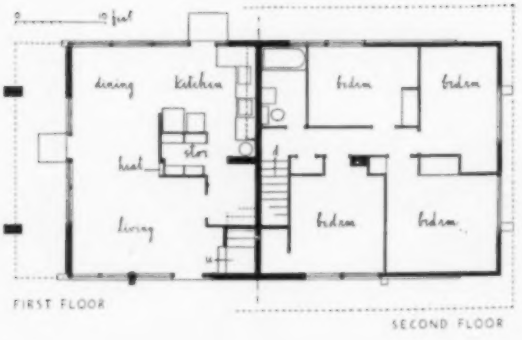




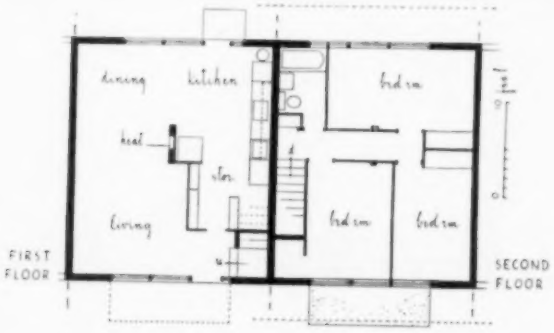
One-bedroom units (plan *and* photo left) *in single-story rowhouses alternate with duplex apartments for larger families. All buildings have cross ventilation and feature individual terraces at ground level.*



Two-bedroom units (plan *and* photo above) *are prominent in site plan for their angled building shape. Angles are wide and open, to avoid dark corners. Rooms are distributed on two floors—bedrooms and bath upstairs, living-dining room and kitchen on the first floor. Note individual garden enclosures for corner apartments. More of these patio walls, steps, and retaining walls were originally intended, but later eliminated for lack of funds.*



Three-bedroom units (photo *and* plan below), *in contrast to angled two-bedroom units, are arranged in straight lines of two-story row houses. Handsomely proportioned masonry walls with alternating shop-fabricated wood panels successfully break the lengths of these blocks.*



Four-bedroom units (photo above *and* plan across-page left), *as well as similar five-bedroom units, are located in two-family houses. A slight projection of the upper story provides a pleasant, sheltered terrace on the ground level, off the living rooms.*

Materials & Methods

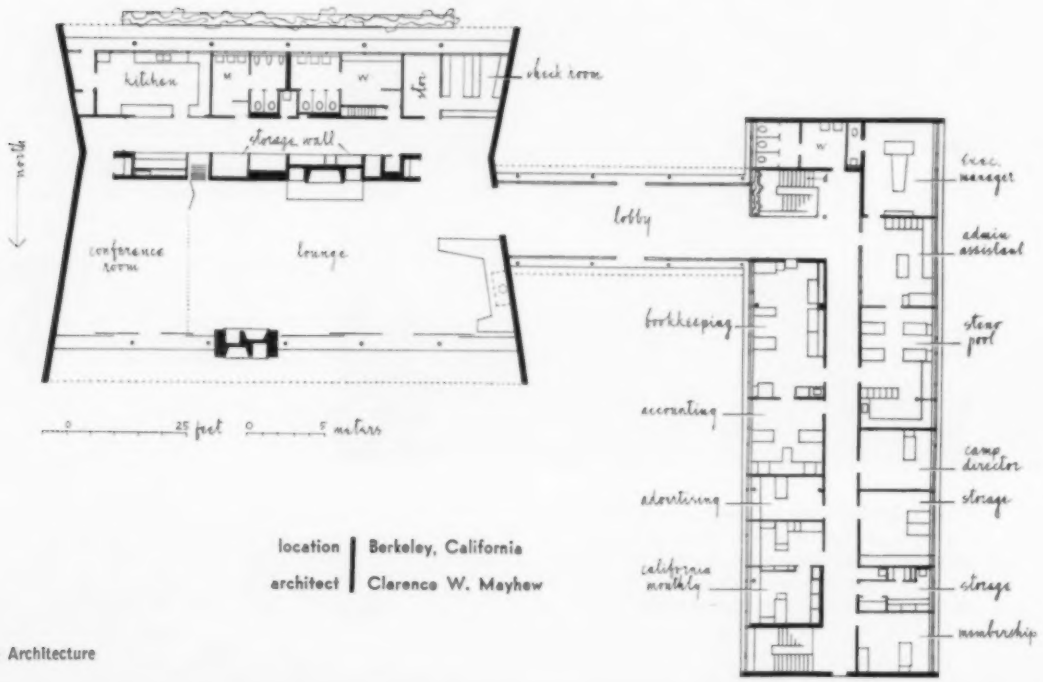
construction

Foundation: concrete. **Structure:** frame, roof: Douglas fir; walls: reinforced concrete block; floors: wood and concrete slab on grade, reinforcing steel—Bethlehem Steel Company. **Wall surfacing:** exterior: wood siding, painted concrete block; interior: integrally colored plaster and painted plaster; rest rooms, toilets: painted plaster. **Floor surfacing:** oak T&G flooring; asphalt tile—Mastic Tile Corporation of America; linoleum—Congoleum-Nairn Inc. **Ceiling surfacing:** integrally colored plaster and painted plaster. **Roof surfacing:** built-up roofing—Koppers Company, Inc. **Waterproofing & dampproofing:** masonry waterproofing—Wesco Waterpaint Company. **Insulation:** foil-backed gypsum lath on ceiling—United States Gypsum Company. **Partitions:** solid plaster on gypsum board, no studs—United States Gypsum Company. **Windows:** steel sash—Detroit Steel Products Company. **Doors:** interior wood-panel doors and solid-core slab elevator doors—Deats Sash & Door Company. **Hardware:** Schlage Lock Company and The Stanley Works. **Paint & stain:** exterior: concrete-block paint—Wesco Waterpaint Company; interior: wood, concrete-block, and plaster paint—Dunn Edwards Corporation, integral color for plaster—Highland Stucco & Lime Products, Inc.

equipment

Specialized equipment: ranges—Dixie Products, Inc.; refrigerators—Frigidaire Division of General Motors Corporation. **Lighting fixtures:** interior fixtures—Harvey Hubbell, Inc.; outdoor floodlights—Crouse-Hinds Company. **Electric distribution:** panelboards—Meyers Electric Company; multibreaker—Square D Company; conduit—General Electric Company; transformers—Westinghouse Electric Corporation. **Plumbing & sanitary:** water closets, tubs, and lavatories—Universal-Rundle Corporation; toilet seats—Olsonite Plastics Division of Swedish Crucible Steel Company; individual, gas-fired water heaters—Southern Heater Corporation; faucets—Crane Company; incinerator—American Incinerator Corporation; galvanized-iron and cast-iron pipe—Bethlehem Steel Company, Kaiser Corporation, and Jones & Laughlin Steel Corporation; steel medicine cabinets—Jensen Industries. **Heating:** recessed wall heaters—Superaire Manufacturing Company; fuel—gas.

general practice: alumni house



location | Berkeley, California
architect | Clarence W. Mayhew

This building on the campus of the University of California was designed to provide office space, conference and social rooms for the University's Alumni Association. Headquarters offices for the association are in a wing to the west of the property. A glassed-in entrance lobby connects this wing with lounge and conference room which may be used separately, or combined for large committee and alumni meetings and social occasions. Kitchen facilities also permit the serving of catered luncheons and banquets. The use of lounge and conference room can be further extended during favorable weather by sliding back large glass doors opening onto a paved court and an attractively landscaped terrace and garden.

The basic structure is a light steel frame with concrete, lateral bracing walls. Major materials include natural stone and Roman brick used as veneers on concrete walls. Window walls are of light steel. All ceilings are surfaced with acoustical plaster. The heating system employs fan convectors below the windows of the office wing, and forced-air ventilating system for lounge and conference wing.

Prof. H. Leland Vaughan, Chairman, Department of Landscape Architecture at U of C, was Landscape Architect. Interiors are by Karl Rhode-Hamel with James Hill and Bonynge's; Structural Engineer, A. E. Waegemann; Electrical-Mechanical Engineers, Stelmec Engineers; General Contractor, Robert L. Wilson with Midstate Construction Co.

Bookkeeping office (above) *and alumni magazine office* (right) *face east toward terrace and social wing. Artificial lighting is by fluorescent fixtures, providing 50 foot-candles at desk height. Window walls with awning sash are of light steel. Flooring throughout office wing is asphalt tile. Floor below office wing is used for storage purposes.*

Photos: Morley Baer

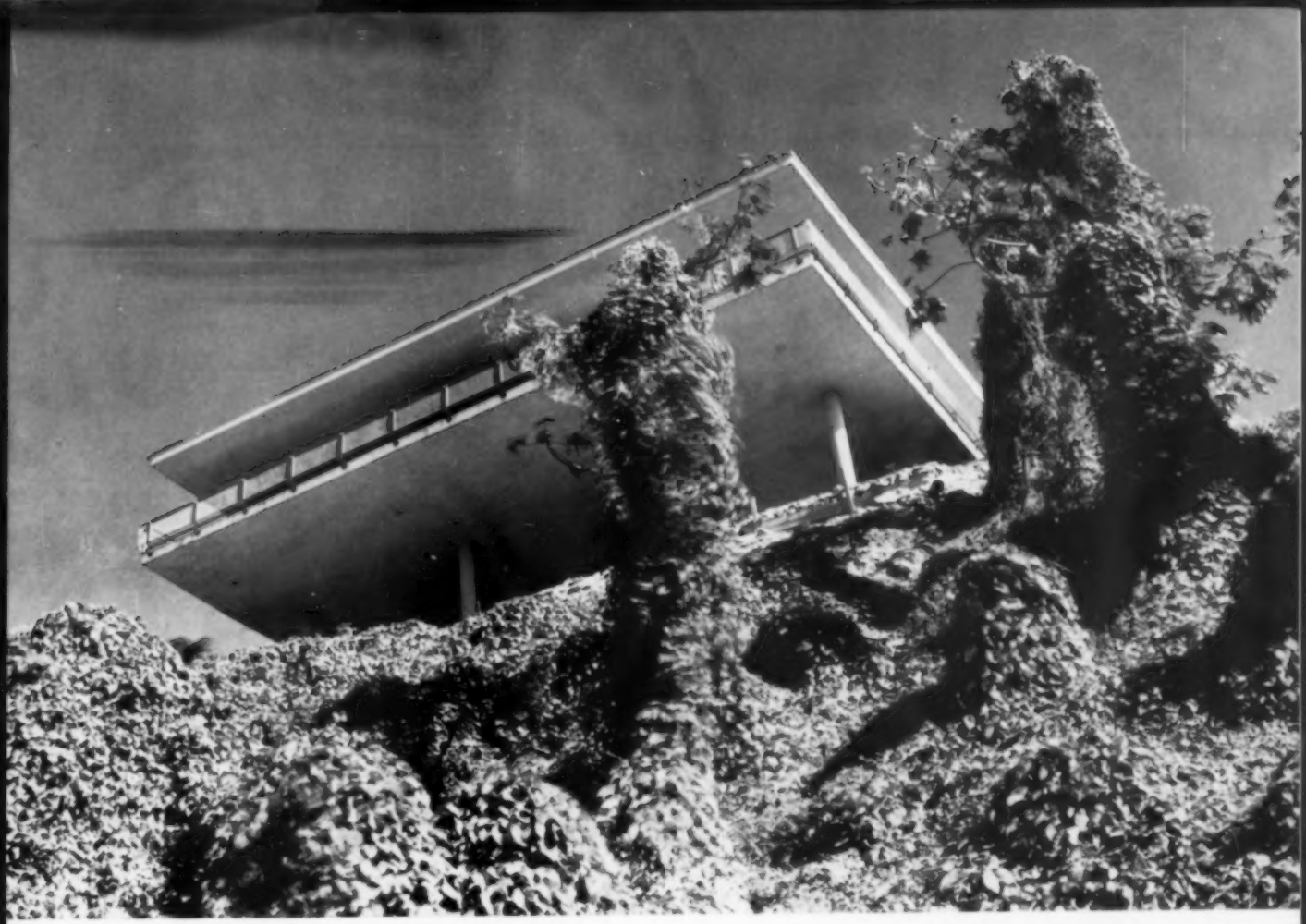
Lobby (acrosspage top) *joins office wing at far end of entrance lobby with lounge* (below) *and conference room beyond. Both lounge and conference room open directly onto a handsomely landscaped terrace and garden* (right).

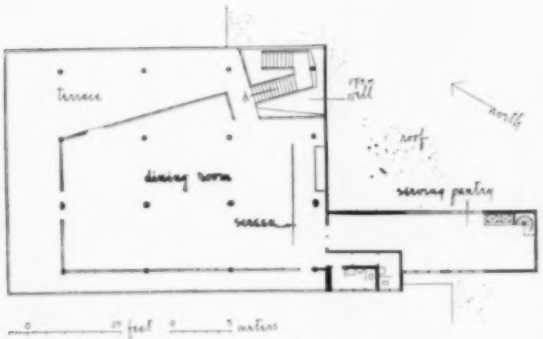
general practice: officers club

location | Ramey Air Force Base, Puerto Rico
architects | Weed, Russell, Johnson Associates

Cantilevered slabs of this reinforced-concrete structure were set as close as feasible to the edge of the 200-ft cliff above the Caribbean—to take full advantage of the dramatic prospect and to gain more floor space on the view side for this new two-story addition to the existing officers club. The lower floor, on a level wih the existing swimming pool, is actually an open space connecting the pool with a dance patio. This area also borders on the existing kitchen and is often used as an open-air, though sheltered, dining terrace. A handsome stairway connects with the glassed-in floor above, which contains space for dining and cocktail parties, and a service kitchen, directly over the existing main kitchen. Three sides of the upper level have access to a broad balcony. Floors in the newly finished sections of the building are terrazzo. The ceiling on the upper floor is surfaced with acoustical tiles; the terrace ceiling below employs stucco. Exterior walls in the enclosed dining and cocktail room alternate between floor-to-ceiling glass and wood jalousies. Eduardo J. Amaral, Architect, of Santurce, Puerto Rico, was responsible for the initial conception of this addition. Norman J. Dignum were Structural Engineers; R. L. Duffer & Associates, Mechanical Engineers.

Photos: Alexandre Georges




terrace
dining room
screen
sewing pantry
roof
north
0 10 feet
0 3 meters

PRESTRESSED AND PRECAST CONCRETE:

by Fred E. Koebel* and Eric C. Molke**

In recent years there has been a general trend throughout the construction industry toward more acceptance and use of precast, prestressed-concrete structural members. In the United States today, there exist more than 5000 precast-concrete plants, many of which are equipped to do prestressing work in conjunction with precasting work. Added to these many plants is the willingness of general contractors to do job-site precasting under special conditions for special jobs.

types of members

From the many products which can be manufactured, a few members have become more or less standard and their use has been accepted by architects and engineers quite broadly. Figure 1 shows a sketch of a typical roof panel manufactured in many plants throughout the country. This Double-T section is adaptable for spans from 20′ to 35′ in general, although spans of 50′ have been built. This type of slab is usually reinforced with pretensioning steel and is manufactured by the long-line process. The supporting members are generally prestressed girders, with spans up to 50′ in length, or loadbearing walls.

Another system of floor and roof construction used to a great extent, particularly in Europe, is a system utilizing various precast products tied together with pretensioning steel mortared into grooves. Figure 2 shows two schemes of this type of floor and roof construction. Basically this system consists of prefab-prestressed joists and hung-in filler blocks forming a level ceiling over which in-situ concrete is placed at the job site. The joists may be concrete as in Scheme 1 or clay tile as in Scheme 2 (known as Stahlton in Europe) and they are provided with vertical grooves to receive the prestressing reinforcement. The joists are fabricated from small, easy-to-handle pieces on a pretensioning bed. The wires are placed in the grooves and mortared-in to develop the necessary bond on the steel. The joists are then carried to the job site, erected, and filler blocks placed. The in-situ concrete is then placed. Manufacturers of this system are able to keep a stock of joists and filler blocks which will fit practi-

* *Vice-President and Chief Engineer, Prestressing, Incorporated, San Antonio, Tex.*
** *Vice-President and Technical Director, Prestressing Research & Development, Inc., San Antonio, Tex.*

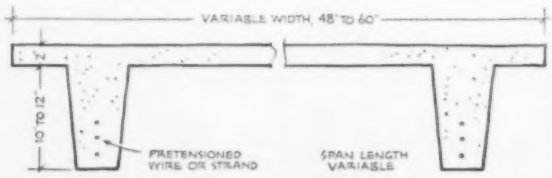


Figure 1—double-T section.

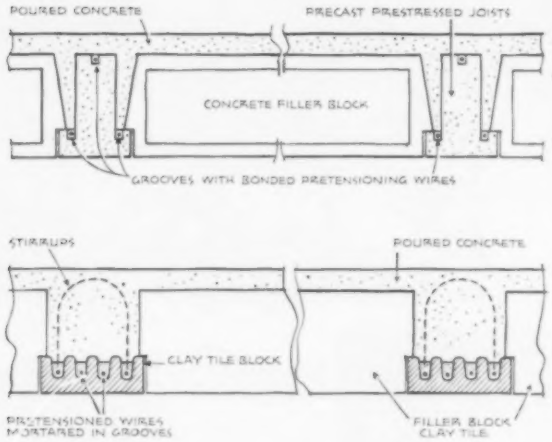


Figure 2—prefab floor and roof systems.

Figure 3—freight terminal utilizes long-span, channel-slab type of precast-roof construction. Channels rest on prestressed girders.

design and construction trends

cally any job condition. Architects are accustomed to designing floors and roofs for these available stock sizes, which explains the rapid acceptance of this system. One of the basic advantages of this method is the flat underside which can be plastered or finished quite economically. This system is particularly well adapted to exposed-ceiling construction and to buildings where floor-to-floor height is of importance.

Another system of precast roof construction used successfully today is the long-span channel-slab type of construction. Figure 3 shows a building utilizing this type of construction. These channels are supported on prestressed girders and are 2′ in width and the legs are 9″ deep. The thickness of the top slab is from 1″ to 1¼″ and it is reinforced with a light mesh. Reinforcing bars of various sizes depending on span are placed in the legs. The maximum span is usually about 22′. Channels are usually manufactured from lightweight concrete. The channels in this roofing system are supported by precast, prestressed girders 50′ in length. The cantilever is 15′ and the interior span is 35′. The total depth of girder, including 9″ of fill concrete for the tying of the roof channels, is only 26″.

Another type of channel slab sometimes used is a prestressed-channel slab. These slabs are from 4′ to 5′ in width and span up to 40′ in length. The depth of slab varies from 9″ to 12″ and the weight varies from 27 lb per sq ft to 35 lb per sq ft. Figure 4 shows a stack of prestressed-channel slabs ready for erection. These slabs may be either pretensioned or post-tensioned. When the slabs are post-tensioned, vacuum curing and lifting can be used to advantage in order to free forms more rapidly for reuse.

Still another type of channel slab is shown in Figure 5. These channel slabs span 33′ and are 12″ deep; they are 5′ in width and the top slab is 1¼″ thick reinforced with mesh. The slabs are supported on cast-in-place rigid frames spanning 66′. In this particular job the contractor elected to cast these panels on the job site as shown in Figure 6. Both vacuum curing and vacuum lifting were utilized to expedite casting and erection.

Perhaps one of the most flexible roof systems available in precast concrete is

Figure 4—precast, prestressed-concrete roof panels, 5′ x 28′, ready for erection (left); *depth, 7½″; weight 28 psf. These slabs may be pretensioned or post-tensioned.*

Figure 5—channel slabs spanning 33′ in roof are 12″ deep; top of slab is 1¼″ thick and 5′ wide (below).

Figure 6—channel slabs shown in photo (above) *were cast at job site* (left).

shown in Figure 7. This system utilizes precast and prestressed purlins from 6′ to 10′ on center combined with precast roof plank or channel plank spanning the 6′ to 10′ span. The purlins are supported by prestressed girders serving as the main members. This system can be adapted for bay sizes from 20′ to 50′ with very little increase in dead weight of structure. The filling slab used is always the same and only the purlin increases in weight. Hence the unit load is held more or less constant regardless of span. As an example of this, one structure using the system shown in Figure 7 has bays of 40′x25′. The roof purlins span in the 25′ direction and are 10′ on center. The purlin weight is 90 lb per running foot or 9 lb per sq ft of area covered. The channel plank spanning the 10′ direction weighs 14 lb per sq ft, thus giving a total weight of roof structure of 23 lb per sq ft. The purlin shown can span 35′ with a roof load. Thus the span was increased 10′ with no increase in dead load of structure. This system can also be successfully adapted to floor loadings with the precast panel or channel serving as a form for any additional in-situ concrete. With the purlin framing into the bottom flange of the girder, over-all depth of roof system is held to a minimum dimension.

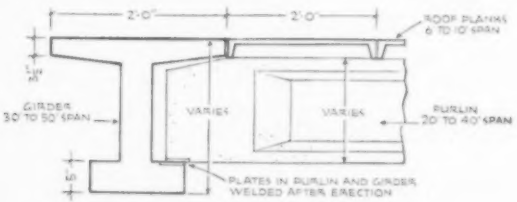


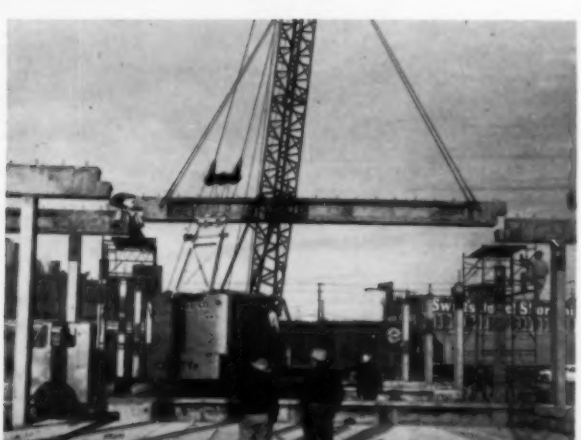
Figure 7—girder-purlin-plank system.

Utilizing these precast and prestressed concrete members has made possible the construction of warehouses, schools, garages, and many other buildings at a relatively low initial cost. When this low initial cost can be achieved, the advantages of lower insurance rates and lower maintenance costs are added incentives for construction of this type. A 25,000-sq-ft warehouse recently built in the Southwest was constructed for less than $4 per sq ft. The structure, with office space, utilized bays of 50′ x 30′. The structural frame was built for $1.25 per sq ft, including columns. The owners will realize $24,000 in savings from insurance-rate differences in 20 years.

Figure 8 is a view of a gymnasium recently completed. This gymnasium roof has girders with a maximum span of 109′. Girders were cast in place in this instance, utilizing two sets of forms that were reusable. The depth of girder is 5′-6″. The roof structure is composed of precast joists, spanning 21′, and 2″ of insulation on T-bars.

Figure 8—cast-in-place girders in this gym span 109′ (left). *Architects: Gregg & Briggs.*

Figure 9—joist detail for disciplined continuity.



continuity

With the increased acceptance of precast concrete and prestressed concrete there has also developed the use of continuity for prestressed-concrete members. As with all structural materials, in order to utilize the material to its fullest, continuity should be developed. With prestressed-concrete members, continuity introduces various problems not encountered in simple-beam design, among which are friction during construction and secondary moments which the designer should be cognizant of during the analysis of his structure. In general, continuity in prestressed concrete can be divided into four broad classifications:

I disciplined continuity,
II composite continuity,
III joint continuity,
IV monolithic continuity.

The first type of continuity, while not true continuity, is a type of design which takes both negative and positive moments into account. The title "disciplined continuity" is given because that is just what is done in the design—neg-

ative and positive moments are controlled by careful selection of the length of members. This system is utilized in steel design and sometimes with laminated-wood girders, but has not been employed to a great extent in concrete design. Nevertheless, precast concrete is particularly well adapted to this type of construction. The system is composed of "drop-in" beams which take their reaction on cantilevers extending from girders which in turn extend from the adjacent bays. Theoretically, the positive and negative moments in the girder with the cantilevers should balance; however, due to the fact that the cables are raised and the section of the girder is changed at the support, the negative moment is usually held to approximately 80 percent of the positive moment. The resulting span for the drop-in girder is reduced, with a corresponding reduction in moment. The joint between drop-in members and the cantilever member remains as a pin and functions as a pin under all load conditions. The entire system is statically determinate and stable so that there are no secondary prestressing moments developed. Friction between prestressing cables and the ducts or concrete is of no measurable importance because prestressing cables do not have a double reverse in direction. The most practical application of this type of structural framing is in multibay warehouses. Lateral stability of the structure is maintained by the roof system which may be any of the precast systems outlined in the earlier sections of this paper. Figure 9 shows a typical joint for this type of construction. Figure 10 shows the values of moments developed in the structure and compares them to a simple construction. The section of the girder used is also shown. It can easily be visualized that the section shown could not carry the loading as a simple beam with the same strength concrete or the same quantity of prestressing steel. The authors have found that this type of construction is not particularly adaptable to skip-loading criteria.

This type of construction has many advantages. The primary advantage is the saving in materials and in reduced depth of member. Advantages in prestressing are also gained, i.e., no secondary moments are developed and friction loss during stressing is at a minimum. Minor disadvantages are joinery and differences in span length, which introduce forming difficulties if it is desired to use the same form for both types of members.

The second type of continuity that can be developed with prestressed, precast members is composite continuity or continuity that is obtained with the use of mild-steel reinforcing to develop the negative moment at the continuous joints. This has been done successfully with precast roof members that have been made continuous across the supporting girders, and in frames erected from precast members. Figure 11 shows a rigid frame recently completed using this type of continuity. Columns with sufficient dowels were cast in place. Girders 42" in depth were built on the floor slab and prestressed to the full value of prestressing force required for the maximum positive moment developed under all conditions of loading. The girders were erected and the mild steel from the girders was welded to the corresponding steel from the columns to develop a continuous joint at the knuckle.

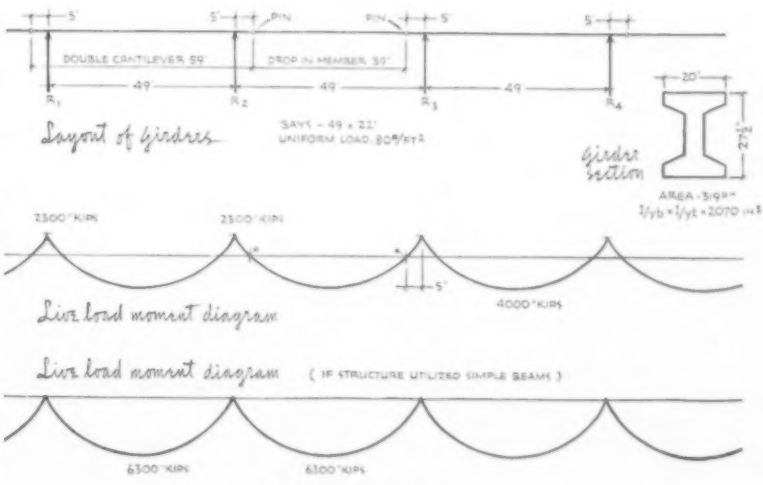


Figure 10—disciplined continuity.

Figure 11—rigid frame with composite continuity.

Figure 12 indicates the various moment conditions developed with this type structure as well as a comparison between simple-beam moments and the continuous moments. The frame utilized was designed for hurricane-wind stresses. The mild steel at the joints was designed for the maximum negative and positive moments that were developed at the joint. The simple beam-and-post system obviously would not resist these particular design criteria.

The third type of continuous structure that can be constructed with prestressed, precast concrete members is that type in which continuity is obtained by the introduction of post-tensioning reinforcing across the joint after the various sections or pieces of the structure are erected. An example of this type of construction is shown in Figure 13. In this structure the girders, 144′ in length, 84″ in depth at the center, and 66″ at the ends, and weighing over 200,000 lb, are cast on the ground and then erected through the split columns by means of hydraulic jacks resting on top of the columns. Figure 13 shows the erection of this girder system. When the girders are raised to the right elevation they are temporarily pinned and the roof system placed. The roof panels are placed on the bottom flange, thus presenting an upstanding girder. After the girder has taken its full deflection from the dead load of the roof structure, short prestressing units are introduced at the "knuckle" for full rigid-frame action under all live load and wind loads. Figure 14 shows the moments developed on this structure. Obviously the comparable simple-beam moment could not be developed in the girder section used in this rigid frame.

One interesting point which should be brought out about the above three systems of continuity is the fact that the designer can control critical moments either by judicious selection of span lengths and cantilever lengths as in Type I or by the control of the time of placing known dead loads. In this manner, the size of the footings, columns, and members can be readily controlled to meet any design criteria. For example, the roof structure in the rigid frame shown in Figure 13 could have been placed after the joint had been prestressed and made continuous. However, the footing stresses would have been excessive and in this instance soil conditions prevented this action.

The fourth system of continuous prestressing is the monolithic-continuous type in which the prestressing tendons extend in general throughout the entire length of the members. Usually this type of structure is cast in place, although various systems have been introduced to precast this type of member. In this type of continuous prestressed-concrete structure, friction between concrete and prestressing tendons becomes important. Various methods to reduce this friction value have been developed. First the tendons may be laid-in straight and the soffit of the member curved to develop the eccentricities of tendon desired. Va-

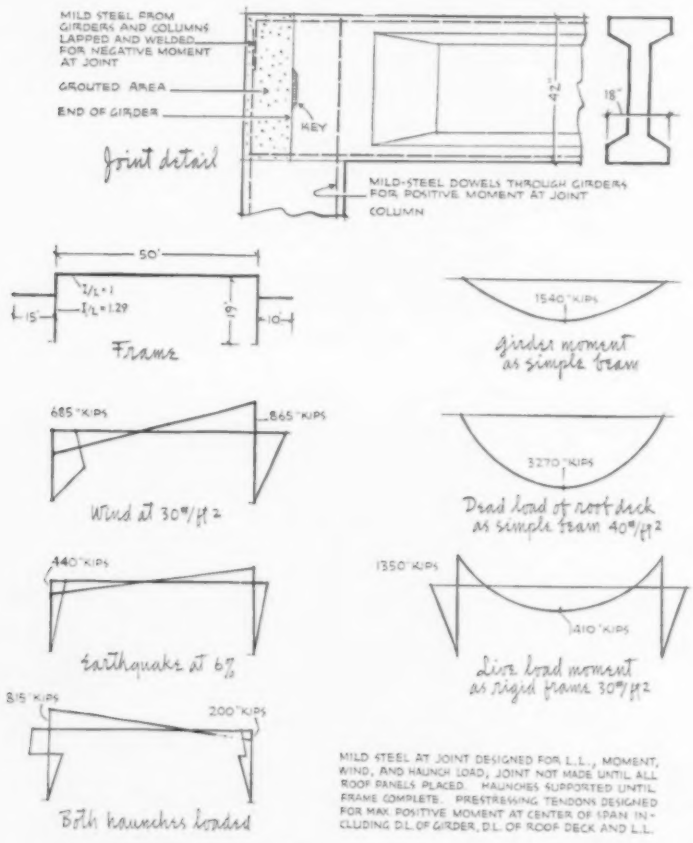

MILD STEEL FROM GIRDERS AND COLUMNS LAPPED AND WELDED FOR NEGATIVE MOMENT AT JOINT
GROUTED AREA
END OF GIRDER
KEY
Joint detail
18"
MILD-STEEL DOWELS THROUGH GIRDERS FOR POSITIVE MOMENT AT JOINT
COLUMN
50'
I/L=1
I/L=1.29
15'
10'
Frame
1540 "KIPS
girder moment as simple beam
685 "KIPS
865 "KIPS
Wind at 30#/ft 2
3270 "KIPS
Dead load of roof deck as simple beam 40#/ft2
440 "KIPS
Earthquake at 6%
1350 "KIPS
410 "KIPS
Live load moment as rigid frame 30#/ft2
815 "KIPS
200 "KIPS
Both haunches loaded
MILD STEEL AT JOINT DESIGNED FOR L.L., MOMENT, WIND, AND HAUNCH LOAD; JOINT NOT MADE UNTIL ALL ROOF PANELS PLACED. HAUNCHES SUPPORTED UNTIL FRAME COMPLETE. PRESTRESSING TENDONS DESIGNED FOR MAX. POSITIVE MOMENT AT CENTER OF SPAN INCLUDING D.L. OF GIRDER, D.L. OF ROOF DECK AND L.L.

Figure 12—composite continuity.

Figure 13—these 144′ prestressed girders were cast on ground and erected by means of hydraulic jacks resting atop split columns.

rious friction-reducing plates may also be used. However, in continuous construction it is necessary to provide means to account for any calculated friction losses. Care should also be taken in construction to prevent lateral "wobble" of cables which will increase friction substantially.

Figure 15 shows a four-span continuous flat-slab bridge. The spans are 45′-65′-70′ and 45′. The maximum depth of slab is 24″. Dead weight was reduced by the use of tubular fiber forms throughout the structure.

secondary bending moments

In systems III and IV mentioned above, the effects of prestressing must be accounted for in the stress analysis of the structure. The prestressing forces brought into the continuous member introduce secondary bending moments, the magnitude of which is not negligible. The designer of an indeterminate prestressed-concrete structure must be cognizant of this effect in the evaluation of stresses developed in the structure. Many articles have been written outlining various procedures to evaluate these secondary bending moments. In general the authors have found the following procedure satisfactory in the analysis for an indeterminate prestressed structure:

1—analyze the structure for all loading conditions, i.e., dead load, live load, wind load, etc.;

2—design the prestressing reinforcing and girder section to resist these stresses;

3—evaluate the secondary moments caused by this prestressing reinforcing;

4—superimpose this secondary effect on the other stress conditions and check all stress stages;

5—make any necessary adjustments in geometry of the girder and cable layout;

6—repeat steps 3, 4, and 5 until desired allowable stresses are obtained.

All of these steps can be taken utilizing the ordinary tools of structural analysis, i.e., slope deflection, moment distribution, angle change, elastic weights, etc.

Step 3 (*above*), the evaluation of the secondary moments, is really the only different concept involved in the analysis of indeterminate prestressed-concrete structures. The secondary moments introduced into the structure are due to the basic relationship of stress and strain. A statically determinate structure, i.e., a simple girder, can develop its elastic strain under the action of prestressing without alteration of the external reactions on the structure; however, in a structure that is indeterminate the external reactions will be modified by the change in elastic shape of the structure induced by the application of prestressing forces. The basic problem is then one of evaluating this change in elastic shape of the structure.

Steps 4 and 5 (*above*) are therefore nothing but check steps and are similar to any indeterminate analysis.

Continuity thus can be seen to be a logical development in the prestressing industry. In the past years it has been

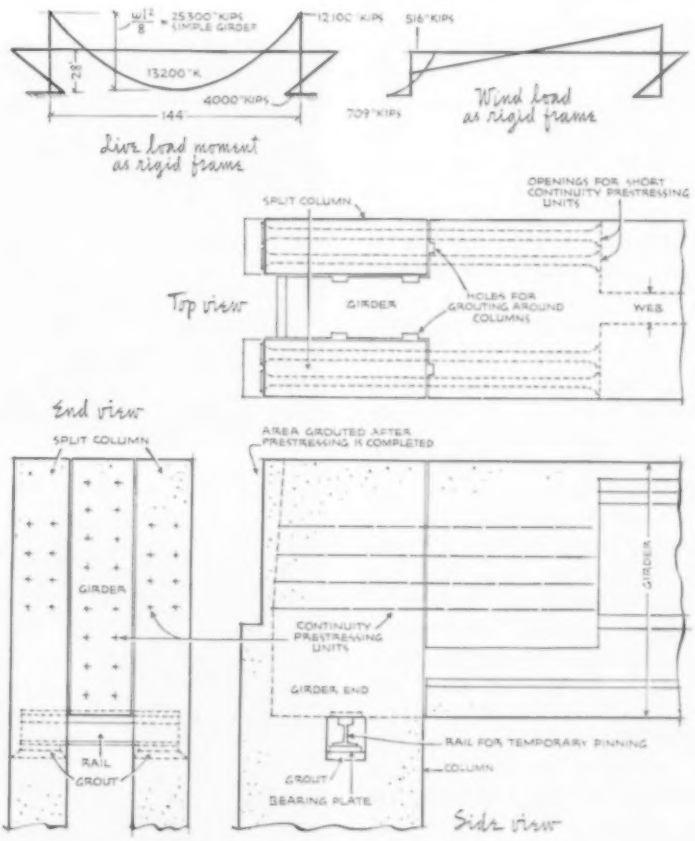


Figure 14—joint continuity.

Figure 15—four-span continuous flat-slab bridge; maximum depth 24″. Consulting Engineer: Francis J. Niven.

shown that with simple structural members prestressed concrete is competitive to other structural materials which are designed as continuous members. Undoubtedly, with the use of continuity, prestressed concrete can become even more competitive.

thin-shell domes

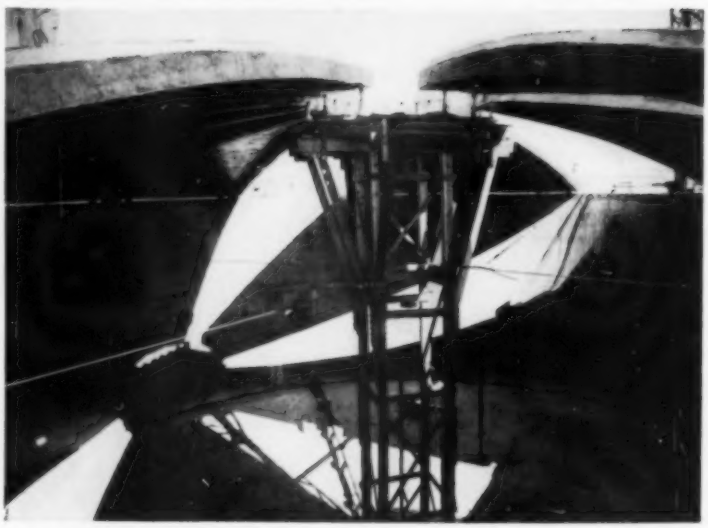
One type of structure which has not yet been precast to a great extent is the thin-shell-dome type of structure. Figure 16 shows a job-site casting yard for precast tank covers. The span across the tank in Figure 17 is 75′ and the average thickness of the dome skin is 2″. This tank cover was constructed from sixteen precast elements. These elements were curved to a radius of 100′ in both directions. The segments were placed in position by use of a derrick. One end of the segment rests on the tank wall and the other end rests on a wooden tower at the center of the tank, as shown.

The segment ribs had to be designed in such a way that they could carry the dead load of the segment between the center tower and walls during construction. The circular base ribs resting on the tank walls were cast with holes, into which were threaded the prestressing units for a tension ring to take up the dome thrust. A top compression ring was cast around the top ends of the segmental dome panels which left an opening big enough to hoist and remove the central tower after all panel joints were grouted and the prestressing introduced. Thus the slabs in the final stage act merely to resist the dome compression. The radial dome ribs give added stiffness to the dome structure and offer a pleasing architectural appearance. This type of construction should therefore have a wide application for more monumental buildings of round or square plan area.

Obviously, since World War II there has been a tremendous increase in precasting and, of course, in the prestressing of concrete. Many fine structures both here and abroad have been built utilizing these mediums of construction. It is felt that architects and engineers will continue to develop these "tools" of concrete construction.

Figure 16—casting yard at job site for precast thin-shell domes (below).

Figure 17—erection of thin-shell segments. A top compression ring was cast later (bottom)



closed-circuit tv

by Max H. Kraus*

Exactly what is closed-circuit television? This question has been raised by architects and engineers with increasing frequency during recent months, and many more might well be asking the same question.

The terms, "closed-circuit television" and "industrial television," have been used to encompass a variety of TV applications in which signals are carried from one or more origination points to viewing locations, in a manner that prevents their widespread reception. In order for the designer to realize the full benefits of closed-circuit television, it is important to recognize the types of television systems than can be employed.

In the simplest of applications, television can be applied to the operation of a rolling mill, where the operator is assisted by a television camera that pictures—on a conveniently located monitor—aspects of the operation which are normally beyond his range of view. The basic requirements here can be met with one camera and one monitor connected by a short length of cable. Since no long distances are involved and only one operation is being viewed—without any requirement for transmitting voices or other audio signals—the composite video signals can be sent directly from the camera to the monitor which, in this case, contains only the circuits necessary to display the picture (*Figure 1*). Depending upon the light intensity and installation problems encountered, all necessary equipment can be purchased and installed for a cost of $2000 to $5000.

In many cases, a far greater degree of flexibility is desired to enable a number of viewing locations to be served by a central origination point (*Figure 2*). An example of this situation is one that arises in airports, where an airline must relay flight information to the ticket counters, information desk, baggage-handling room, and food handlers simultaneously and rapidly, without the errors and delays that creep in when messages are relayed from place to place by conventional means. Similarly, the familiar master-antenna system falls in this category, since it provides a means of distributing signals obtained at a single point (the apartment house or hotel rooftop receiving location) to a number of receiving locations (the tenants' living rooms or guest rooms). Here again, closed-circuit television steps in to provide a new factor to consider—local program origination. The 1600-unit co-operative housing recently built on the east side of New York City by the International Ladies Garment Workers Union, not only includes a complete master television-antenna system to provide coverage of New York's seven commercial channels for all apartments, but also has provision for closed-circuit television transmission originating local programs that bring shopping tips and advertising from a nearby shopping center to all tenants. Another closed-circuit TV development is evolving in Pocatello, Idaho, where the local community antenna system, which provides TV reception for the city, is expanding its facilities to enable the local public schools to be linked to a television-studio location on the campus of Idaho State College. In each of these cases, the system uses radio-frequency distribution, in which the video and sound signals are used to modulate radio-frequency carriers, thus making it possible to send simultaneously seven or more signals over the same coaxial cable. While it is difficult to generalize cost in a multichannel, multioutlet installation, it is frequently true that in most buildings the extra cost of the distribution equipment is usually insignificant when compared to the cost of the camera and related equipment needed for the simplest single-camera, single-monitor installation.

The greatest degree of flexibility becomes possible through the use of two-way television (*Figure 3*). This recent innovation makes it possible for a number of cameras and receivers to be installed throughout a building with complete freedom of movement for both. Camera and receiver connection points are provided throughout the area so that television becomes merely another communication service with easy plug-in features at all desired points. At Case Institute of Technology, Cleveland, and at Chicago Teachers College, systems of this type have made improvements in teaching possible by bringing "into the classroom" large projects which otherwise could not be adequately discussed. Similarly, difficult or expensive experiments can be performed before a much larger student audience—with good viewing conditions for all. To facilitate discussion, in addition to the sound which can be carried over the television facilities, one or more twisted-wire pairs are included to provide regular intercommunication circuits.

With these basic tools—point-to-point closed-circuit TV, multichannel general-purpose TV, and two-way TV—the architect has a powerful new medium at his disposal. However, this new type of system imposes an added responsibility on the conscientious designer. He has a responsibility to his client and to himself to see to it that he uses closed-circuit TV properly and fully, whenever it can fulfill a need. In some cases, this will mean nothing more than allowing sufficient space in the projection booth of a new motion-picture theater for a

*Jerrold Electronics Corp., Philadelphia, Pa.

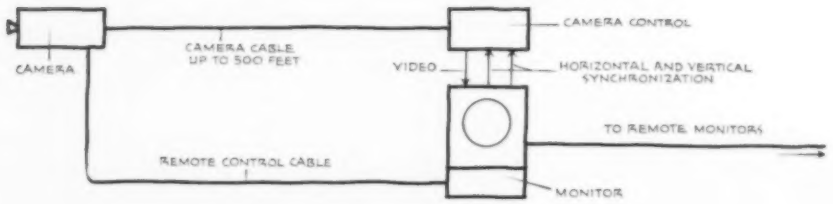


fig. 1
TYPICAL SINGLE-CAMERA TELEVISION SYSTEM

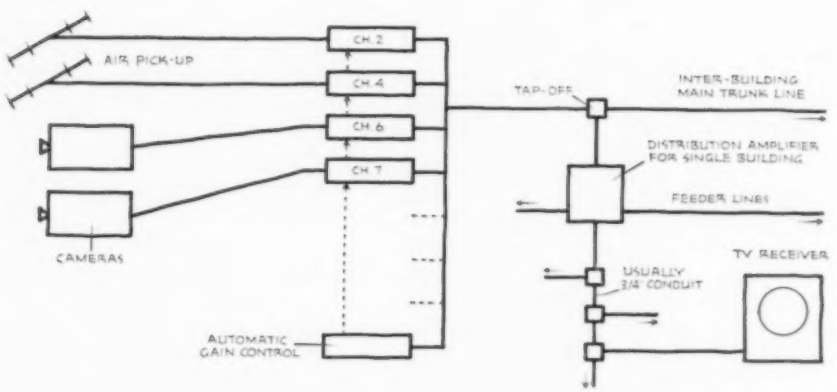


fig. 2
BASIC TELEVISION DISTRIBUTION SYSTEM

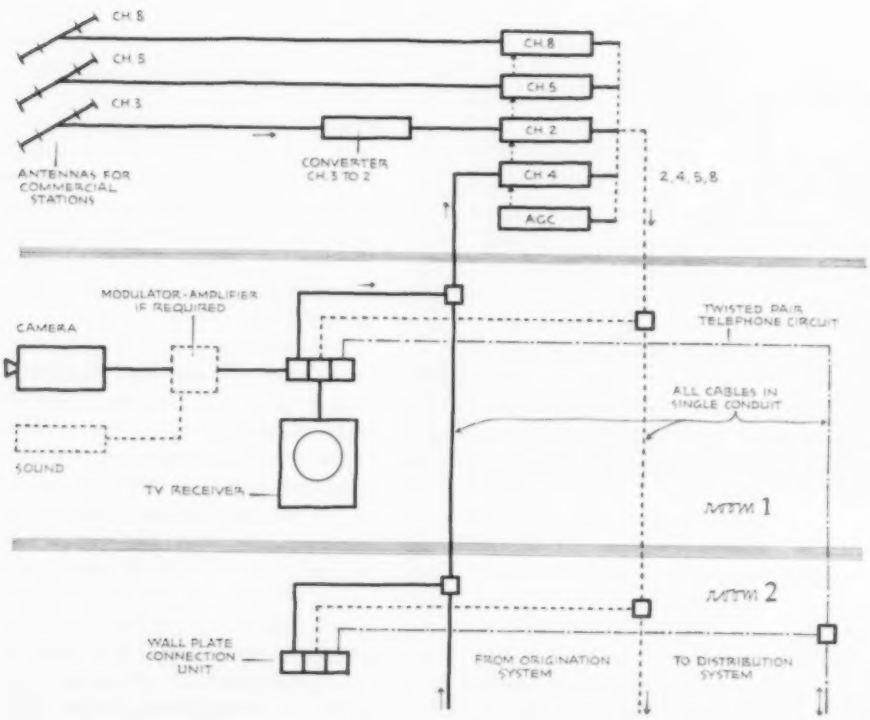


fig. 3
BASIC 2-WAY TELEVISION SYSTEM
unattended central facilities

large-screen TV projector, plus conduit to the roof for an antenna lead-in, and conduit to the basement for connection to a line which will bring future closed-circuit programs over special telephone-company facilities. In other cases, the entire design of a building may be affected, particularly in schools and colleges. Through tests made at Fort Monmouth and Penn State and elsewhere, it has been established that television has vast possibilities as an audio-visual aid and a potential teaching medium. Already, it is possible to eliminate projection booths at the rear of classrooms or in lecture halls by substituting a central motion-picture distribution center, from which films are shown over television. Such a system not only eliminates the cost of the projection booths and movie projectors, but also improves viewing conditions, eliminates the need for darkening a room, and lifts a burdensome duty from the teacher's shoulders. Similar facilities for live-program origination can make it possible to reach simultaneously all pupils in their classrooms, thus making it possible to eliminate auditorium facilities under certain conditions.

Structurally, the inclusion of closed-circuit TV poses no headaches for the architect. In fact, since two-way TV makes it possible to originate programs from any point in a building, a studio is frequently unnecessary. The decision regarding the exact design of the system must, of course, be made after a thorough review of the TV requirements —and preferably after discussion with a qualified supplier of closed-circuit TV systems to insure that the latest improvements are considered. Such a review will include the determination of the requirements shown (*Table I*).

Little has been said regarding the camera itself, because in most cases its operation is quite simple and does not concern the building designer. The use of vidicon cameras, instead of the image-orthicon type used by television stations, has done much to improve the life and ease of operation, as well as reducing the camera size. The slight disadvantage of the vidicon camera is the need for relatively higher light levels; in most cases, however, this imposes no real problem. A feature that may be of importance in certain specialized applications is the availability of special camera accessories, including remote pan, tilt, focus and lens changes, automatic iris control, waterproof housings, and housings for explosive atmospheres.

With these possibilities at the disposal of the imaginative mind, it is no wonder that several authorities see a long-range potential for closed-circuit TV. Already, almost every type of building or structure has some need for a closed-circuit system either of the regular master-antenna type or with full-program origination facilities (*Table II*).

Table I—Architectural Considerations

1—space;
2—lighting;
3—conduit;
4—electrical power for camera and lights at central-equipment locations and in classrooms;
5—number of receiver connection points;
6—number of camera connection points;
7—need for a studio;
8—number of channels to be distributed simultaneously over system;
9—number of channels to be simultaneously originated from remote points;
10—number of separate circuits;
11—need for connection to telephone facilities for origination or reception of other closed-circuit programs;
12—future expansion.

Table II—Closed-Circuit Applications

Industrial buildings: closed-circuit surveillance; distribution of planning information; two-way, long-range discussions of blueprints; control of difficult or dangerous operations.

Apartment buildings: master-antenna service and local program origination in conjunction with shopping facilities.

Schools and universities: master-antenna facilities plus origination of educational programs for regular scholastic purposes and training of those entering the television profession.

Hotels: master-antenna system plus local origination for announcements, publicity of public functions tie-in with intercity closed-circuit TV.

Tract housing: community antenna-system facilities to eliminate objectionable outdoor antennas.

Department stores and shopping centers: closed-circuit promotion of specials and public events.

Banks: closed-circuit signature verification and surveillance.

Hospitals: master-antenna system plus closed-circuit medical teaching.

Mental institutions: master-antenna system for entertainment (equipped with provision for eliminating undesired programs) plus closed-circuit systems for observing patients under treatment.

Office buildings: master-antenna facilities for tenants.

Churches: closed-circuit viewing from main portion of church to auditorium or Sunday-School rooms.

Theaters: provision for connection to intercity closed-circuit television networks.

Railroads and airports: closed-circuit information displays, general-message handling, and view of obstructed areas.

Traffic control on freeways and tunnels: closed-circuit surveillance of tie-ups or traffic patterns.

Prisons: closed-circuit surveillance.

reconditioning means air conditioning

by Albert Giannini*

The recently remodeled interior of the American Fore Building, 80 Maiden Lane, in New York's financial and insurance district, is one of the largest projects of its kind ever accomplished in this country. Revamped from sub-basement to roof, the building, which houses the five insurance companies of the American Fore Group, was refurbished with modern office decor and new utilities—year-round air conditioning, lighting, and elevator services. The four-year construction job was done without interrupting normal business operations. During this period, in fact, American Fore actually expanded its organization.

Constructed in 1912 and 25 stories in height, 80 Maiden Lane has 350,000 sq ft of office space. Over 2500 people use the building every work day. Few tenants occupy it, however, since most of the building is used by American Fore.

Because 80 Maiden Lane is located in the hub of the nation's insurance industry, the management decided against abandoning the 43-year-old structure. To demolish and replace the building would have been too costly. Also a new building would have required setbacks above the ninth floor—substantially reducing up per-floor work space. At this time, due to American Fore's postwar growth, maximum floor space was urgently needed.

Sturdily built and in prime structural condition, the present building required only interior modernization. With the decision to air condition as well as modernize the building, hitherto poorly ventilated interior work areas could be transformed into comfortable offices. Most important of all, perhaps, was the fact that the building still could be used during alterations; normal office routines could continue unhampered.

One illustration sums up the advantages of modernizing 80 Maiden Lane. For a five-week period dictaphone operators in American Fore's Transcribing Department transcribed 26,830 letters. The department then moved to its permanent location on a remodeled floor where employes could enjoy better seating arrangements, better lighting, more comfortable furniture, air conditioning, and music (piped through a building-wide public-address system). In a subsequent five-week period, the same group of operators transcribed 29,311 letters—an increase of 9.3 percent. Errors had been cut to almost nil and absenteeism had drastically declined.

The rebuilding program began piecemeal. Steam service from New York Steam Corporation was connected to the existing heating system, then four coal-fired boilers were ripped out to make way for two steam-powered centrifugals driven by condensing turbines. The capacities of the two machines are 575 and 775 tons respectively. Chilled water from the refrigeration plant is circulated by pumps to various cooling coils throughout the building. Condensing water for both the steam and refrigerant condensers is recirculated from two cooling towers on the roof. These towers save 95 percent of the condensing water.

The boiler room and coal-bunker areas provided space for refrigeration apparatus, air-conditioning equipment, and storage and maintenance facilities. A chimney, 10 ft square and 26-stories high, was converted into a passageway for chilled water, secondary and condenser water lines, and interior-system conditioned-air risers as well as a 10-in. steam header.

Except for part of the 2nd floor and all of the 1st, 13th, and 14th floors, the building's exterior bays are air conditioned by a high-velocity conduit system that uses individual induction window units concealed by column-to-column metal cabinets. These units replaced radiators and are set to provide a constant year-round temperature of 74 F. After passing through a sound-absorbing plenum, conditioned air mixes by induction with room air.

There are four primary air supply stations: two in roof-top penthouses, which supply air to peripheral units above the 14th floor, and two in the basement mezzanine (old boiler room), supplying all window units from the 2nd to the 12th floors.

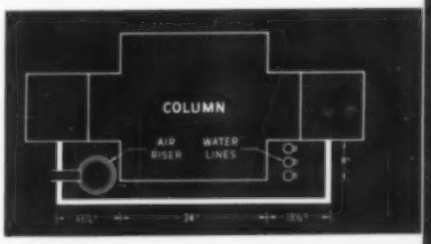
Each of approximately 1650 window units receives its supply of air under pressure through wall risers. Chilled water to each unit is supplied by piping. Wall risers, in turn, receive air from three main trunk ducts, located at each main air supply station.

At each floor there are 40 columns along the periphery of the building. Conduit providing conditioned air occurs at every other column location; at intervening columns piping for chilled and heated water has been installed (*Figures 1, 2, and 3*). After air ducts and piping were connected with the window units, the column was furred out to enclose an area of 4'-3"x13" (*Figure 1*).

Because either hot or cool air circulates through the columnar air ducts, causing them to expand or contract, each duct lead-out was seated with glass-fiber insulation. This minimizes the possibility of the lead-out ducts cracking the plaster furring.

Interior portions of the building are air conditioned by standard low-pressure systems, which feed air to areas over 19 ft from window units. Two such systems, including steam preheaters, electrostatic and dry filters, dehumidifiers with cooling coils, steam reheaters and supply air fans, are located in the basement mezzanine and on the 24th floor. These provide cooling and dehumidification in sum-

* *Carrier Corporation, Syracuse, N. Y.*



mer, tempering and humidification in cold weather.

Similar conventional systems were installed on the 13th (cafeteria and dining rooms) and 14th floors (conference and recreation areas). Equipment's purpose: to accommodate the extra heat loads built up by serving 2000 people daily.

A 30-ft deep, 25-ft wide, and 3-ft high masonry duct, extending from the Maiden Lane wall to the basement mezzanine, brings in outside air to ventilate the lower half of the building. The building's upper half receives fresh air from intakes on the roof. In principle, each primary air intake is similar; fresh air is drawn into the spray-type air conditioner through a rainproof louver and screen. Filters remove entrained dust and dirt particles. In cold weather, this air is tempered by a preheater so that it absorbs moisture when passing through the sprays. Excess moisture in the air is removed by the sprayed chilled-water coil during hot, humid periods or moisture may be added by the sprays for winter humidification. For operation during intermediate seasons a reheater warms the air enough to offset the building transmission losses before the system changes over to the winter heating cycle.

The H-shape of 80 Maiden Lane complicated solar-load effects. Rapid changes in heat gain from the sun were caused by traveling shadows. This condition was solved by the air-conditioning system's flexibility as a constant source of either heating or cooling. On the structure's east side, due to prevailing dirt conditions, extra sash locks on windows helped cut down the entry of dust particles.

Architects: Cross & Son; Consulting Engineers-Designers for all mechanical work: Meyer, Strong & Jones; Mechanical Contractors: Kerby Saunders, Inc.; General Contractor: Irons & Reynolds.

Figure 1—diagram (upper right) *indicates extent of furring and relative locations of air risers and water lines. Actually, air risers occur only at alternating columns and water lines only at intervening columns along the periphery.*

Figure 2—holes for primary-air-supply risers were cut through floors after work hours and on weekends (above).

Figure 3—chilled or heated water pipes (right).

Figure 4—steam fitters prefabricated piping and tubing in basement and later soldered them to window units (right).

Figure 5—metal enclosures extending between columns conceal perimeter air-conditioning units (below).

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Gymnasium at Platte Valley Elementary School, St. Joseph, R.F.D., Mo., doubles as lunchroom during the noon hour. (Architects: Eckel and Aldrich, St. Joseph, Mo.

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by Ben John Small

spec small talk

he's here again!

Did I ever expose you to the current version of the first article of the General Conditions (for multiple contract projects) developed in our shop? I acknowledge readily that this Article is as windy as the last hurricane, but honestly we vent our exhaust in this Article only and then gasp through the rest of the spex. Friends, I am curious as a cat to know what you think of it. Tell you what I'll do. For every letter sent in I will return in kind with a gross of articles such as "a," "an," and "the." I happen to have a large inventory in stock accumulated over the years from operated-upon traditional specifications.

Here it is:

1. Specifications Explanation:

(a) Wherever reference is made to the "General Conditions" it shall mean the "General Conditions Governing All Contracts." All work of each Contract is subject to the requirements of these "General Conditions."

(b) These Specifications and General Conditions are of the brief or "streamlined" type and include incomplete sentences. Omissions of words or phrases such as "the Contractor shall," "as noted on the Drawings," "according to the plans," "a," "an," "the," "and," and "all" are intentional. Omitted words or phrases shall be supplied by inference in same manner as they are when a "note" occurs on the Drawings. Words "shall be" or "shall" shall be supplied by inference where a colon (:) is used within sentences or phrases. Words "as per" shall mean "in accordance with." Words "provide" and "work" shall mean that each Contractor shall furnish, install and connect up complete, in operative condition and use, all materials, equipment, apparatus and required appurtenances of the particular item to which it has reference. Where a manufacturer's name is mentioned, words "as manufactured by" or "as made by" shall be understood.

(c) Each Contractor shall provide all items, articles, materials, operations, or methods listed, mentioned, or scheduled on Drawings and/or herein, including all labor, materials, equipment, and incidentals required for their completion. Where reference is not made to a particular Contractor, it shall mean each Contractor for each separate Contract.

(d) Whenever words "approved," "satisfactory," "directed," "submitted," "inspected," or similar words or phrases are used, it shall be assumed that the word "Architects" follows the verb as the object of the clause, such as "approved by the Architects" and "submitted to the Architects."

(e) Reference to known standard specifications shall mean the latest edition of such specifications adopted and published at date of invitation to submit Proposals.

(f) Reference to a technical society, organization, or body is made in the Specifications in accordance with the following abbreviations:

ACI	American Concrete Institute
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
ASA	American Standards Association
ASTM	American Society for Testing Materials
AWSC	American Welding Society Code
FS	Federal Specification
NBFU	National Board of Fire Underwriters
NEC	National Electric Code
UL	Underwriters' Laboratories, Inc.

(g) The following examples illustrate in part "streamlining" as used in these Specifications.

EXAMPLE I (Usually employed with respect to descriptions of materials.)

Traditional Version

Portland cement shall be of American manufacture and shall conform to the requirements of the Standard Specifications of the American Society for Testing Materials, Designation C 150, Type 1, latest edition thereof.

Streamlined Version

Portland cement: standard American brand, ASTM, C 150, Type 1.

EXAMPLE II (Usually employed with respect to descriptions of workmanship.)

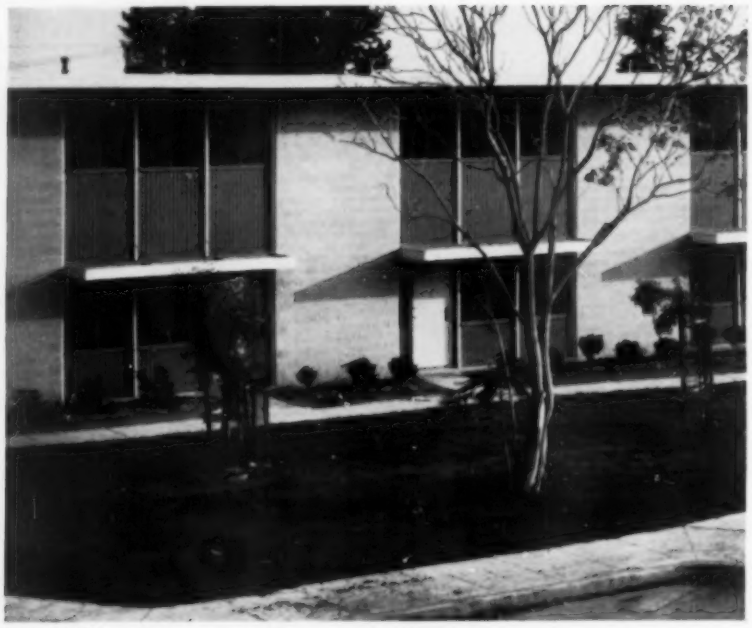
Traditional Version

The Contractor shall furnish and install tin-clad sliding fire doors in all sizes and thicknesses as indicated on the Drawings all in accordance with the current requirements for Class "B" label doors as promulgated by the National Board of Fire Underwriters and as approved by the Architects. Doors shall be the approved equivalent of No. 429 made with a two-ply wood core and as manufactured by the XYZ Door Manufacturing Company and be designed for a single sliding operation on an inclined track. In addition, the Contractor shall furnish and install all the necessary and required hardware accessories of the approved equivalent to the XYZ Manufacturing Company's No. 202 flat-track single-link hardware which shall include the necessary and required brackets, track, rollers, binders, door handles, weights, pulleys, etc. In accordance with the requirements of Article 6 of the General Conditions Governing All Contracts, the Contractor shall submit complete shop drawings and also include the necessary and required hardware cuts.

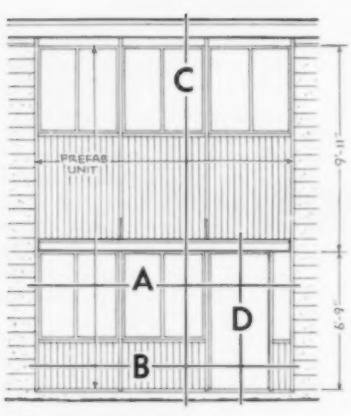
Streamlined Version

Provide approved tin-clad sliding fire doors as indicated, as per NBFU Class "B" label. Doors: equal to XYZ Door Manufacturing Company's No. 429 single sliding type, on inclined track. Provide hardware equal to above manufacturer's No. 202 assembly. Submit shop drawings, hardware cuts.

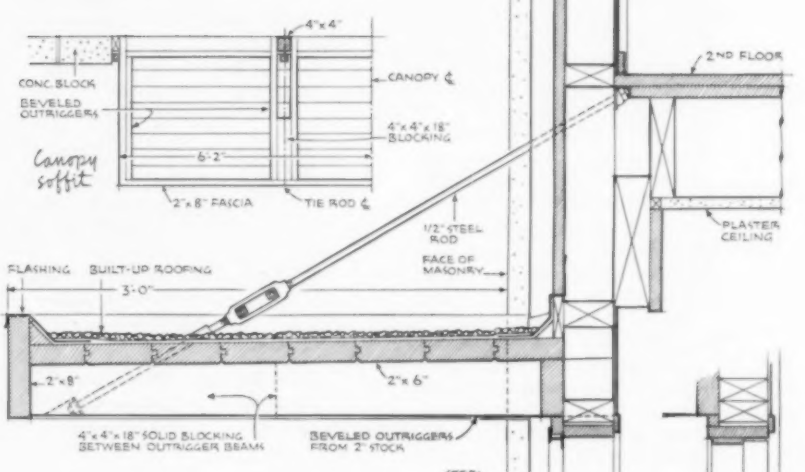
entrance facade

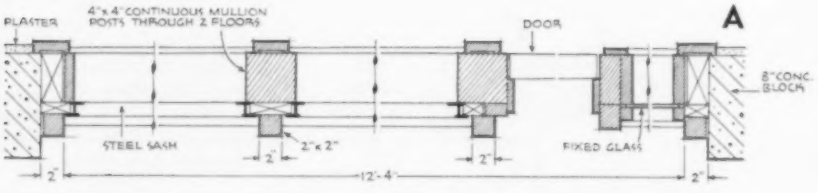


JULIUS SHULMAN

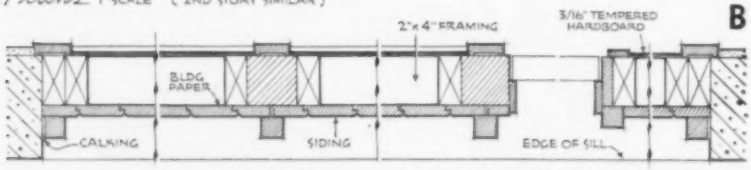


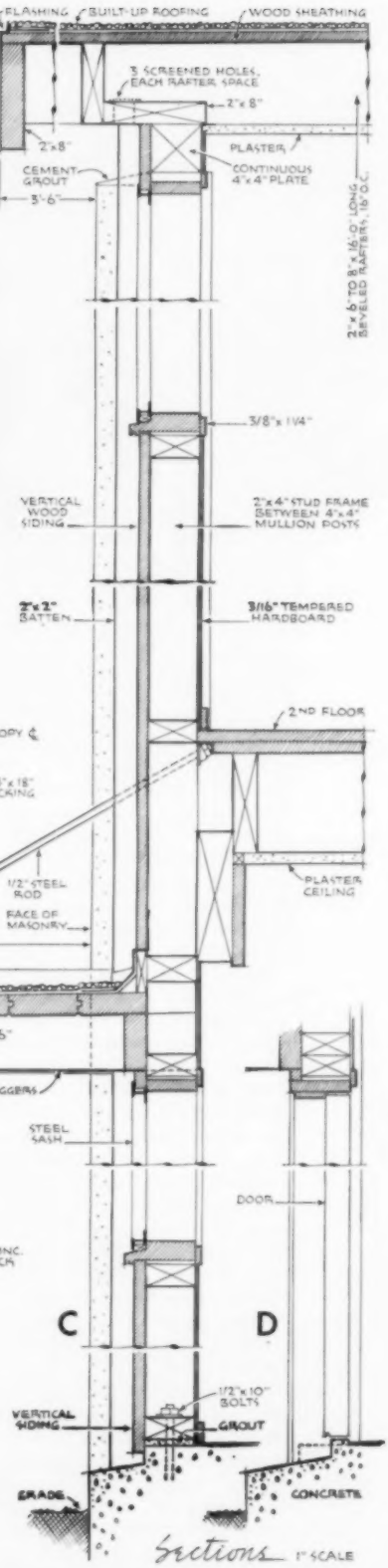
Elevation 1/8" SCALE





Plans 1" SCALE (2ND STORY SIMILAR)





Sections 1" SCALE

HOUSING PROJECT, Pacoima, Los Angeles, Calif.
Arthur Gallion and Victor Gruen, Associated Architects

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Scandinavian Design Cavalcade

In the fall of 1955, the capitals of Denmark, Finland, Norway, and Sweden were the scene of an annual Scandinavian Design Cavalcade, arranged through the joint efforts of Scandinavia's museums, department stores, workshops, designers, art schools, and art associations. So much excellent design was shown that we have gathered a diversity of illustrations to bring you the highlights from each of the four countries. The 1956 Cavalcade will be held during September.

So that you will not be frustrated by seeing handsome objects that you can do nothing about but admire, we have requested from the four countries' Consulate Generals the names and addresses of American importers of similar merchandise, which appear below.

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Selig Manufacturing Co., Leominster, Mass.
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Mogensen/Combs of Brentwood Village, 11708 Barrington Court, Los Angeles 49, Calif.
Gunnar Schwartz Company, 103 North Western Ave., Los Angeles, 4, Calif.
Carlo Harder, 1562 Cypress Ave., Burlingame, Calif.

Sweden

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A. Johnsson & Co., Inc., 21 West St., New York 6, N.Y.
Swedish Metalcraft, Inc., 387 Kinderkamack Rd., Oradell, N.J.
Dux Company, 390 Ninth St., San Francisco, Calif.
Dux, Inc., 31-15 Vernon Blvd., Long Island City 6, N.Y.
Form and Function, Inc., 730 Fifth Ave., New York, N.Y.
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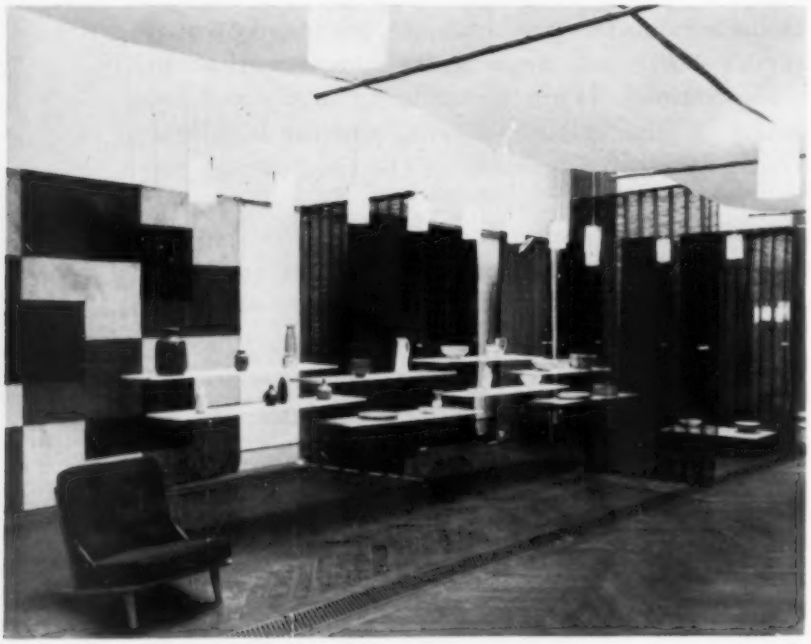
We Moderns, 1272 Broadway, New York, N.Y.

Finland

Information may be obtained only by direct contact with the Finnish Foreign Trade Association, Etela Esplanaadikatu 18, Helsinki, Finland.

Scandinavian Design Cavalcade

DENMARK



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Photos: Courtesy of Danish National Travel Office

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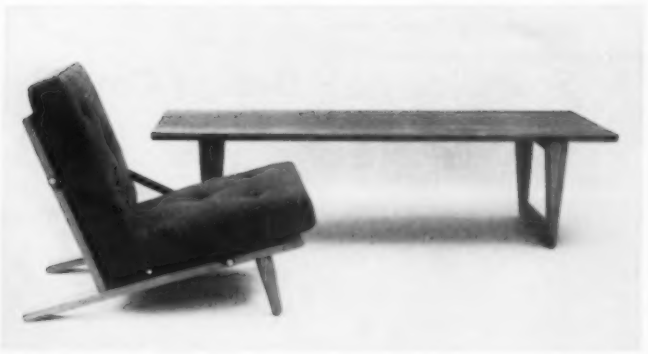

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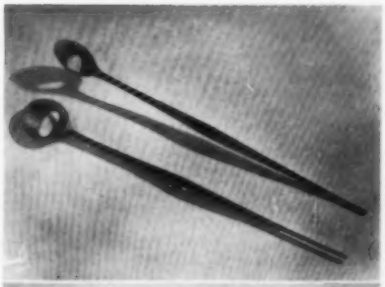

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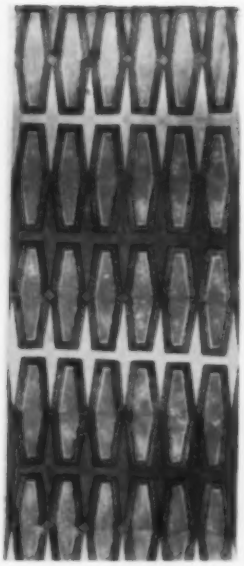

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9

1 *Exhibit designed by Architect Vilhelm Wohlert for Danish Society of Arts and Crafts and Industrial Design/ chair designed by Borge Mogensen/ pottery by Saxbo Stentoj/ glass by Nathalie Krebs/ carpet on wall by Ea og Mogens Koch.*

2 *Entrance hall, annual exhibit of The Danish Society of Arts and Crafts and Industrial Design/ arranged by Architect Vilhelm Wohlert.*

3 *Exhibition at Bovirke, Copenhagen/ furniture designed by Architect Finn Juhl.*

4 *Exhibition at Aksel Sorensen, Copenhagen/ furniture designed by Architect Hans J. Wegener/ produced by A/S Getama, Gjedsted, Jutland.*

5 *Chair and bench in oak or teak/ designed by Borge Mogensen/ produced by Fredericia Stole-og Polstermobelfabrik.*

6 *Salad set in rosewood/ designed by Kari og Johan de Neergaard.*

7 *Kitchenware of enameled steel, ovenproof/ in red, yellow, turquoise, green/ designed by Jens H. Quistgaard/ produced by Glud og Marstrands Fabriker for "Dansk Design, Inc.," U.S.A.*

8 *Handprinted tapestry/ produced and designed by Ruth Christensen/ pastel pink, green, and yellow on pale blue ground.*

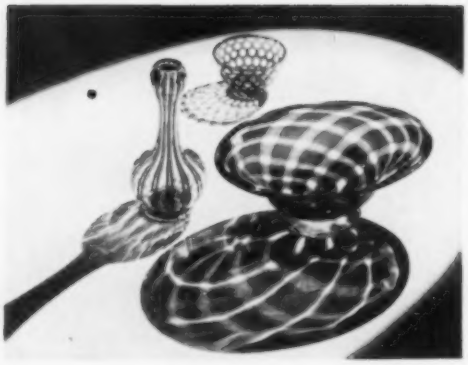
9 *Table and chairs in oak or teak/ designed by Nanna & Jorgen Ditzel/ produced by A/S Kolds Savvaerk.*

Scandinavian Design Cavalcade

SWEDEN

Photos: Courtesy of Swedish National Travel Office

Display in co-operative department store (top) *in Stockholm. Residential interior* (above) *at "Friluftstaden" Malmo. Glass bowls and vase* (right) *by Orrefors.*



NORWAY

1 *Living room designed by Architect Alf Sture of Oslo/ furniture executed by Hiorth & Ostlyngen and Hans Sundt-Monrad.*
2 *Lamp in brass and aluminum/ designed by Birger Dahl/ produced by Sonnico of Oslo.*
3 *Coffee-pots for restaurant use/ designed by Tias Eckhoff/ made by Porsgrund Porcelain Factory.*
4 *Plated silver/ designed by Arne Korsmo/ executed by J. Tostrup.*
5 *Vases designed by Willy Johansson/ produced by Hadelands Glassverk.*

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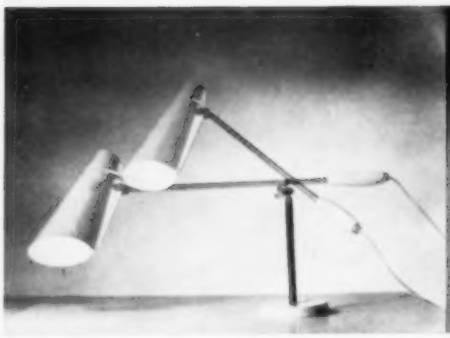

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Photos: Courtesy of Norwegian Travel Office

Scandinavian Design Cavalcade

FINLAND

Photos: Courtesy of Finnish Society of Arts and Crafts and Industrial Design

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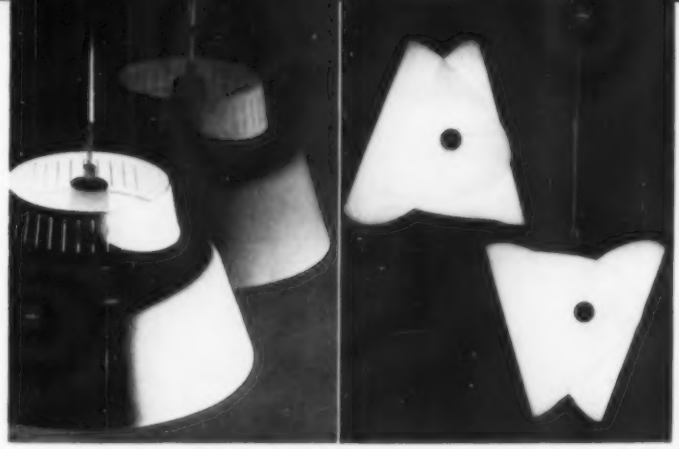

5 6

1 *Interior, Skanno Oy/ designed by Ilmari Tapiovaara*
2 *"Congo Chair"/ designed by Ilmari Tapiovaara, Designers S.I.O., Helsinki/ manufactured by Askon Tehtaat Oy.*
3 *Chairs and table/ designed and produced by Artek.*
4 *"Colette" Easychair I and II/ designed by Ilmari Tapiovaara/ manufactured by Askon Tehtaat Oy.*
5 *Lighting fixture, sprayed aluminum/ designed and produced by Lisa Johansson Pape.*
6 *Plastic reading lamps/ designed by Yki Nummi/ produced by Stockmann-Orno.*
7 *Glasses/ designed by Tapio Wirkkala/ produced by Karhula-Iittala.*
8 *Glass vases/ designed by Kaj Franck/ produced by Waertsila-Notsjo Glassworks.*
9 *Serving forks, tea strainer, cake server/ in sterling silver and Brazil rosewood/ designed and produced by Bertel Gardberg.*

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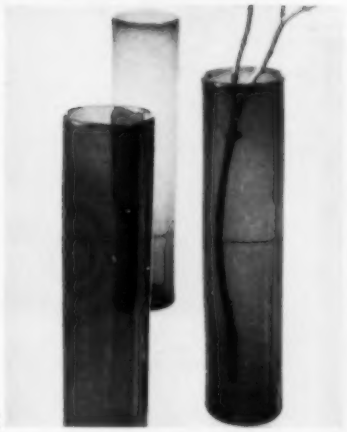

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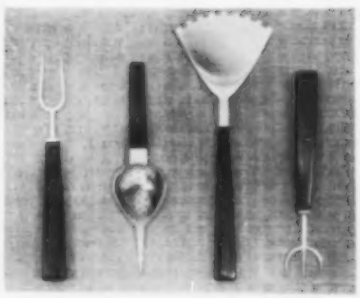

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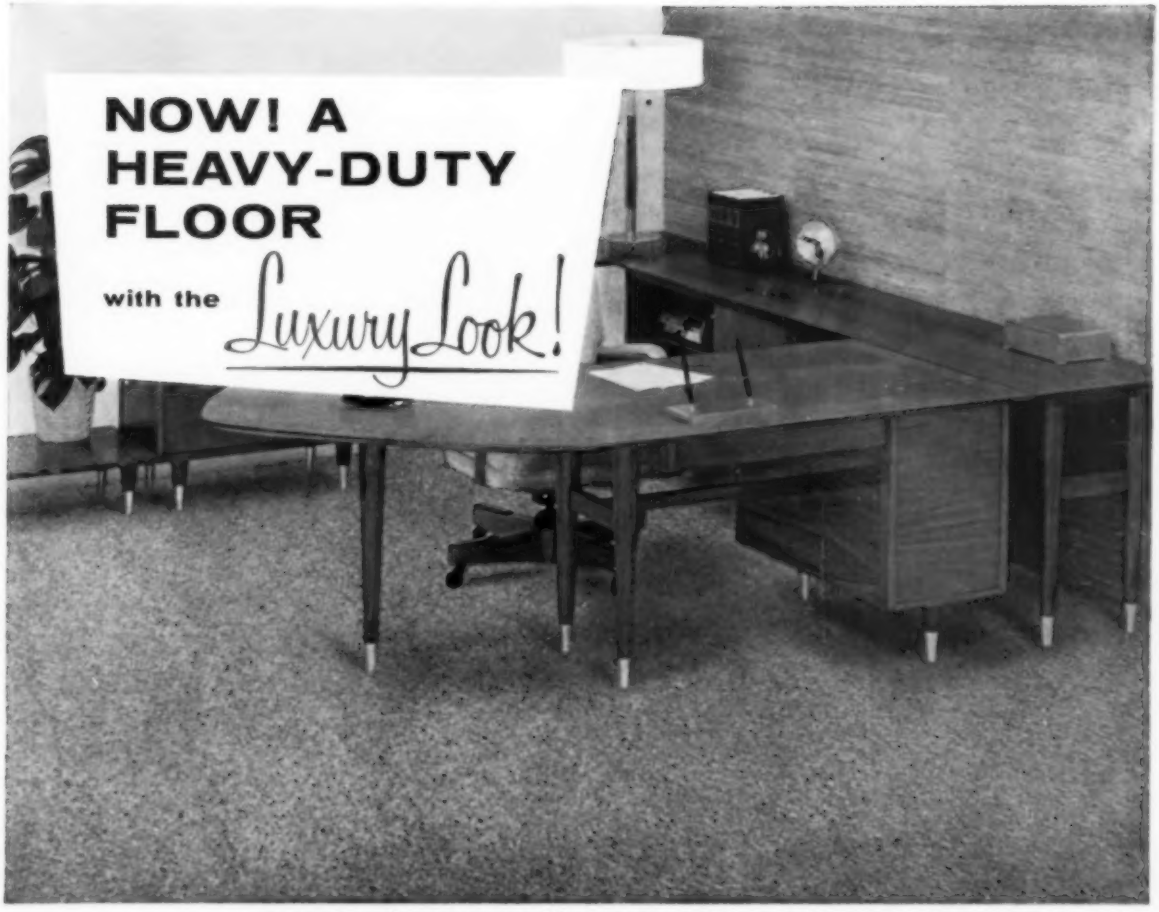
Living-Dining Area: sliding doors (on cabinet) of woven leather in Bolivian Peacock, Baghdad purple, Gulf Stream blue/sofas upholstered in Bolivian Peacock tropical leather, new mildew-proof, indoor-outdoor leather/hemisphere card table centered in Gulf Stream blue tropical leather/hand-woven rug of wool, interlaced with leather/furniture by The Dunbar Furniture Co./interior designed by **Edward Wormley.**

Reception Area: first prize-winner in architectural classification of The Upholstery Leather Group's design competition/wall panels in five leather colors: Suez gray, Sampan beige, Grasse gold, Managua red, black/cantilevered desk and suspended lighting fixture also leather covered/chairs designed by Raymond Loewy for Do/More Chair Company/interior designed by **Paul Laszlo.**

Living Room: room divider-storage unit, designed by Eugene Torrent, covered in Florentine-embossed Burmese brown leather/sofa in Blue Grotto blue and Sorrento blue, repeated on ebony benches and chair cushions/furniture by Kittinger Co., Inc./interior designed by **John Ullman.**

Split-Level Room: floor and hearth in natural cowhide/room divider screen of walnut and Jade Tulip shadow leather/sofas in Cambodian olive green leather/revolving-top walnut cocktail table/furniture by Jens Risom Designs, Inc./interior designed by **Alice Beck.**

All settings from 1956 Leather in Decoration Show, presented by The Upholstery Leather Group, 141 E. 44 St., New York 17, N. Y.



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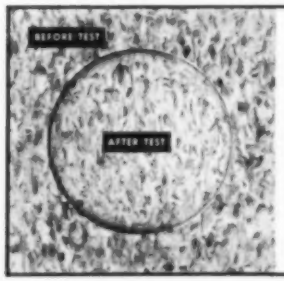

Abrasive Wheel Test proves "Sequin" "looks like new" through long service life!

The circular "After Test" area is the result of applying the abrasive wheel to the "Sequin" sample. See how it *has worn well through the linoleum*—and yet the pattern is still there, as clear and sharp as ever! Compare it with the "Before Test" area. *You can't tell the difference!* Write to Architects' Service Department, Congoleum-Nairn Inc., Kearny, N. J., for further information and samples.

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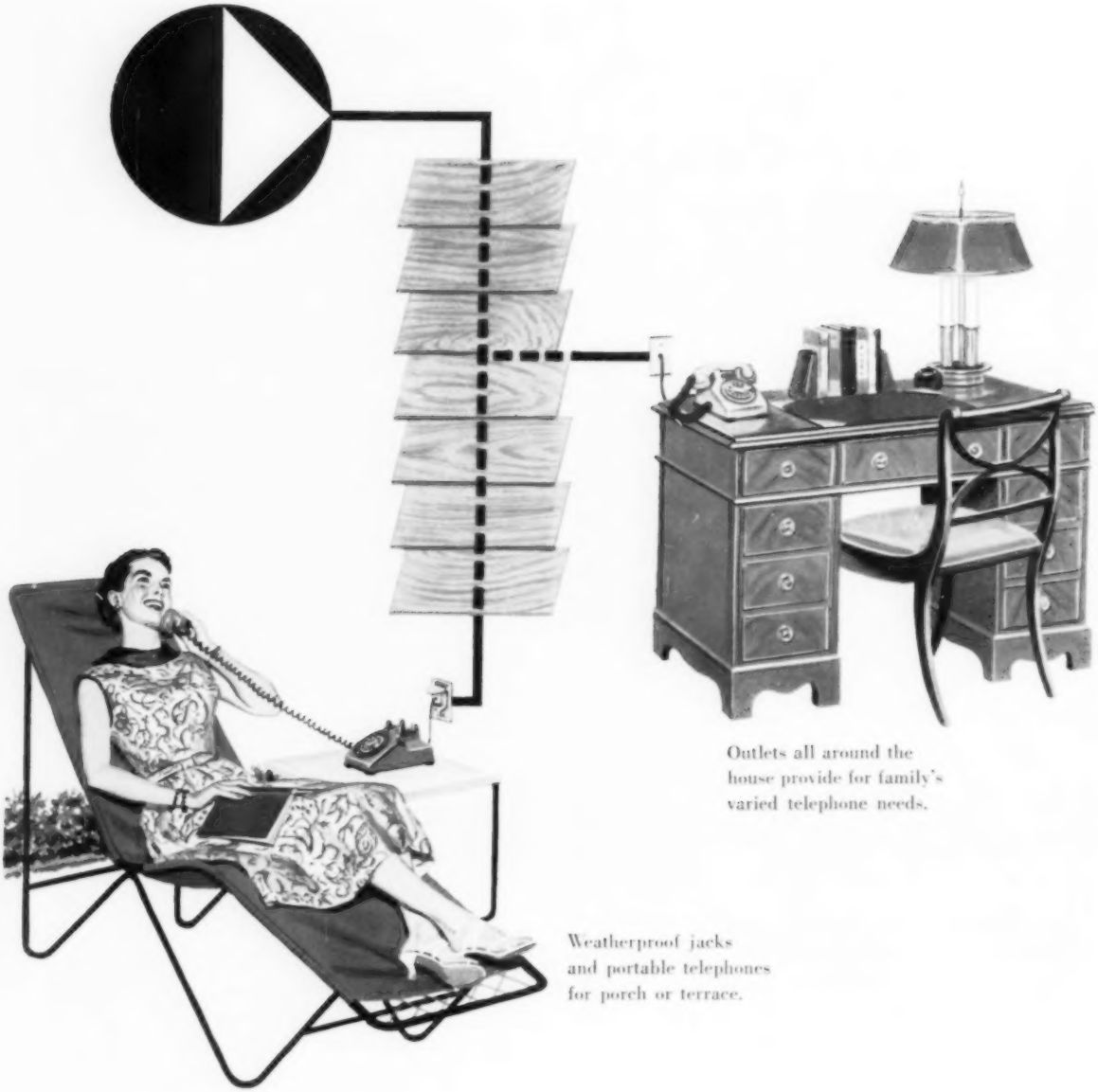

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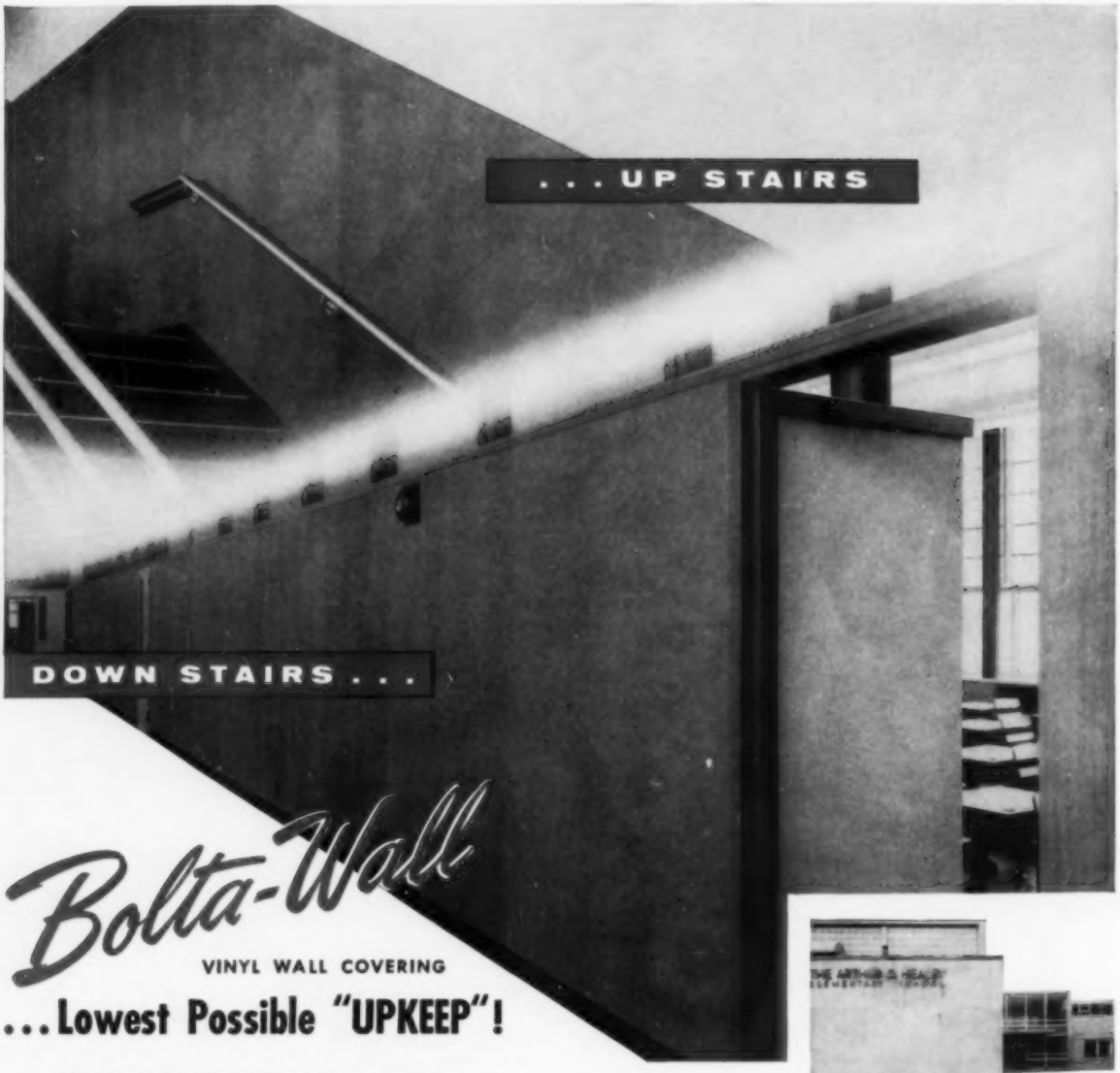
p/a interior design products

Executive Posture Chair: new design for patented chair, fully adjustable and custom fitted for posture support and comfort/in 8 exclusive leather colors, 8 textured fabrics, 9 Naugahyde colors/**retail:** $225; **Side Chairs:** available in same diversity of coverings/**retail:** $125; line includes eleven additional seating styles, all designed by Raymond Loewy Associates/**Do-More Chair Company, Inc., Elkhart, Indiana.**

Executive Office Furniture: group includes 13 multipurpose units, all based on various size desk tops and work areas/basic storage pieces may be used as desk pedestals, for wall storage groupings, drawer and file sections, typewriter units, integrated with separate tops/structural supports of square, satin-finish aluminum/cases in quarter-grain walnut/tops of plasticized walnut/designed by Paul McCobb for H. Sacks & Sons/distributed by **B. G. Mesberg National Sales, 201 E. 57 St., New York, N.Y.**

"Executive Group" Desk: (above) concave curve front and back, gallery framing back edge/tripod legs are founded, brass-tipped/available in single- and double-pedestal units, 5', 6', 11' long/in natural teak, walnut with black Formica, white Formica with walnut in linseed-oil finish.

"Office Planner Group": (right) steel-and-Formica modular desks, completely custom-designed both in color and in unit-assembly/Formica tops in any solid color, wood-grain or pattern, any shape or size/pedestals available with two or three drawers or typewriter compartment/all metal parts available in wide range of chip-resistant colors or in any color to match sample/**Westcort Company, 4 E. 52 St., New York 22, N.Y.**



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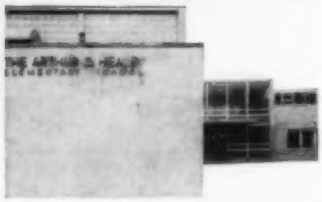

Bolta-Wall *Leathergrain* used as wainscot throughout the Arthur D. Healey Elementary School at Somerville, Massachusetts. Architects: Perley Gilbert Associates, Inc., Lowell, Massachusetts—Mr. Herbert H. Glassman, AIA.

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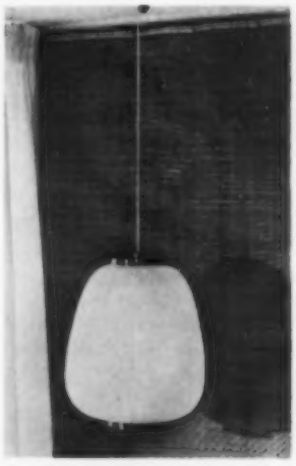
Ceiling Fixtures: eight basic shapes/forms handblown of specially developed pure white illuminating glass/diameters range from 3" to 8", lengths from 10" to 24", special sizes available/rods of polished chrome or sprayed white/designed by Paul Mayen/**retail:** from $18 to $36/**Habitat Associates, 235 E. 58 St., New York 22, N.Y.**

Wall Fixture: direct-indirect/opal-glass bullet globe 16" high/brass-band wall bracket/designed by Paavo Tynell/**retail: $54/Finland House Lighting, 41 E. 50 St., New York 22, N.Y.**



Ceiling Lamp: lantern with opaque vinyl-plastic shade rimmed with polished brass/lamp plugs into baseboard outlet, hangs from ceiling by means of small decorative fittings screwed into ceiling/plastic cord runs through fittings down wall to outlet/**retail:** $13.95/**Lightolier, Inc., 346 Claremont Ave., Jersey City, N.J.**

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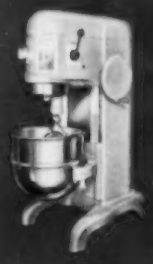

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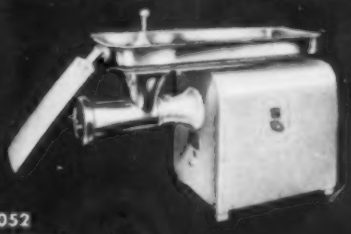
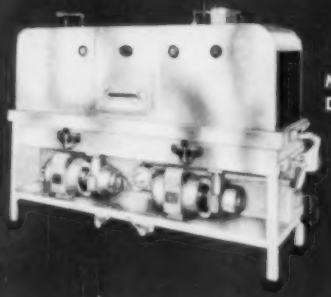
MIXER

Model 400 STEAKMASTER



Model 4052
MEAT CHOPPER



Model XXM-4
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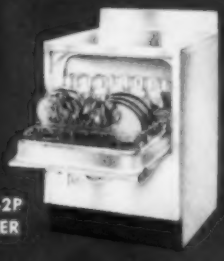

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Multi-Color Lacquer: "Tadpoles"/new pattern added to "Zolatone" multicolor lacquer/sprays on a decorative effect in a single operation / nonstatic, dirt-repellent / may be scrubbed for cleaning/in 6000 custom and stock multicolors/**Paramount Paint & Lacquer Co., 3411 E. 15 St., Los Angeles, Calif.**

Multicolored Floor Tile: "Agatine"/multicolored effect derived from gem-stone agate/provides comfort and quiet of rubber with a super-dense surface that eliminates dirt-catching surface pores/intricately colored, marked pattern shows little dirt, few footmarks/agate-like structure extends through full thickness, without use of laminates or surface finishes/tile is scuff- and scrape-resistant in heavy-traffic areas/⅛" thick or 80-gage/9" x 9" tiles/**Flooring Division, The B. F. Goodrich Company, 36 Nichols, Watertown 72, Mass.**

Gold-Finished Wall Covering: "Cohyde"/gold finishes developed from Aurelian Bronze pigment / tarnish - resistant / weatherometer- and fadeometer-tested/in three textured grains: of Straw, Basket Weave, Harlequin/in colors tipped with gold, or in all over gold/**Cotan Division, Interchemical Corporation, 67 W. 44 St., New York 36, N.Y.**

Portable Home Stairway Elevator: "Stair-Glide"/may be installed with only a screwdriver and vise grip/plugs into any household electrical outlet/no special wiring is required/chair contains all operating and electrical mechanism, rides on 12" aluminum track/automatic push-button direction/meets National Safety Code requirements/**American Stair-Glide Corporation, 7204 Wyandotte St., Kansas City 14, Mo.**

Light-Reflective Wall Tile: "Iridescent"/formulation incorporates light reflection in tile's composition, permitting tile to crystallize and diffuse light/high reflective sheen, opalescent appearance/available in six House & Garden colors/in 4¼"x4¼" field size and 8½"x8½" panel including trim/beveled edges/**Artcrest Plastics Co., Inc., 259 W. 79 St., Chicago 20, Ill.**

Carpet With Built-In Cushion: "Candalon"/100% nylon carpeting fused to foam cushion to form all-in-one carpet and cushion combined / 54" wide / four patterns: "Patio," "Chevron," "Challenger," "Criss-Cross" / in Sandalwood, Spruce Green, Hunter Green, Turquoise, Church Red, Old Gold, Gray, Beige/patented seaming, binding and edge finishing process for smooth appearance and added durability/**contract price:** $6 sq yd/**Collins & Aikman Corporation, 210 Madison Ave., New York, N.Y.**

Laminated Counter Surfacing: "Monotop"/counter-top, back splash, curved front lip molded in a single piece/of "Textolite" plastic laminate/factory-cut to customer's specifications/in 10 patterns and colors/ready-for-use in lengths up to 72"/seamless single molding eliminates crevices, metal moldings, joints / **Laminated and Insulating Products Dept., General Electric, Pittsfield, Mass.**

Corrosion-Proof Water Heater: designed especially for areas where high corrosive water conditions exist/rust- and corrosion-proof automatic electric water heater with Permastone cement lining/lining ¼" thick on all sides, top, and bottom/all plumbing connections of brass/available in 50- or 80-gallon capacities/**Hotpoint Co., 5600 W. Taylor St., Chicago 44, Ill.**

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p/a manufacturers' literature

Editor's Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.

air and temperature control

133. Pyle-National Multi-Vent Diffusers (390-E-55), 4-p. circular on low-velocity air diffusers designed for concealed installation in perforated-metal-pan ceilings. Discusses advantages of large, perforated, distribution panels; also shows installation of diffuser in plaster and dry-wall constructions. Drawings; selection tables. Multi-Vent Div., The Pyle-National Co., 1334 N. Kostner Ave., Chicago 51, Ill.

134. Brundage Series "X" Blower Assemblies (53), 28-p. catalog containing information on line of double-inlet, double-width furnace blowers. Describes operation of blowers with vertical or horizontal discharge; provides performance charts, capacity tables, and dimensions for each model. Also includes fundamental fan laws as well as data for determining pulley sizes and speeds. The Brundage Co., 522 N. Park St., Kalamazoo, Mich.

135. Remote Air-Cooled Condensers (AC-100), 4-p. bulletin on air-cooled condensers for use with air-conditioning systems when cooling water is unavailable or expensive. Describes construction features of condensers; gives dimensions and weight; provides performance chart as well as data on coil and fan capacities. Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa.

136. Marlo Seazonaire, AIA 30-F (3355), 16-p. brochure featuring remote-type room air-conditioning units, especially applicable for existing buildings where new duct systems are impracticable. Drawings illustrate six standard units; sketches show suggested installation of recessed and surface-mounted units. Also describes construction and operation of conditioners. Marlo Coil Co., 6135 Manchester Ave., St. Louis 10, Mo.

137. Type-D, Water-Tube, Steam Generators (126-D), 12-p. pamphlet on packaged steam generators with 8000 to 50,000 lb per hr continuous-steaming capacities. Outlines features of construction; explains controls for manual, semiautomatic, or fully automatic firing; describes combustion equipment for oil or gas fuel. Drawings; dimensions; capacity tables. Superior Combustion Industries Inc., Times Tower, Times Sq., New York 36, N. Y.

138. Type-WTP, Water-Tube, Steam Generators (551), 14-p. publication on shop-assembled steam generators ranging in capacity from 7500 to 40,000 lb per hr. Illustrates design and construction features of generators; shows cut-away section of interior. Also includes data on burners, controls, and safety equipment; tables of dimensions and capacities. The Titusville Iron Works Co., Div. of Struthers Wells Corp., Titusville, Pa.

construction

254. Armco Special-Purpose Steels (PO-4855), 8-p. bulletin outlining properties of stainless steels, aluminum-coated sheet steel, and porcelain-enameled steel. Describes physical characteristics of each material; lists suggested interior and exterior applications; presents cost data. Photos of typical installations; suggested specifications. Armco Steel Corp., 4855 Curtis St., Middletown, Ohio.

255. Blumcraft Aluminum Railings (M-56), 44-p. catalog illustrating stock aluminum-railing sections for assembly by local metal fabricators. Presents low-cost, trapezoidal-section railing for use in place of pipe rail; shows several types of railings for features locations. Provides drawings, details, and dimensions for each style; specifications. Blumcraft of Pittsburgh, 460 Melwood St., Pittsburgh 13, Pa.

256. Dur-O-waL Masonry-Wall Reinforcement, AIA 10-C, 4-p. folder describing steel reinforcement for reinforced-masonry and cavity-wall construction. Provides selection data; gives information on comparative strengths of high-tensile steel reinforcement and conventional round bars. Isometric details; specifications; suggestions for reinforcing joints of various wall assemblies. Dur-O-waL Div., Cedar Rapids Block Co., Cedar Rapids, Iowa.

257. Clay-Pipe Warm-Air Heating Duct, 12-p. manual on design and installation of clay-pipe duct systems. Compares advantages of perimeter-loop layout over radial plan; presents recommended procedure for design of duct system, including necessary tables. Photos; dimensions; installation instructions. Clay Sewer Pipe Assn., 311 High-Long Bldg., 5 E. Long St., Columbus 15, Ohio.

258. Davidson Architectural Porcelain, AIA 15-H-2 (56), 14-p. booklet on porcelain-enameled-steel curtain-wall and facing panels. Describes features of double-wall panels, available with or without non-shrinking gypsum-base backing; presents details, specifications, and photos for both types of panels. Also provides data on porcelain-enameled gravel stops. Davidson Enamel Products, Inc., 1104 E. Kibby St., Lima, Ohio.

259. Leap Precast and Prestressed Concrete, AIA 4-K, 36-p. pamphlet containing information on precast, prestressed structural members. Explains advantages of prestressed concrete over conventional steel-reinforced concrete; gives design tables as well as details for precast roof slabs, joists, channels, and slab constructions. Also provides data on prestressed concrete piling and bleacher seats. Leap Concrete Div., Lakeland Engineering Assn., 211½ S. Tennessee Ave., Lakeland, Fla.

260. M-Floors, AIA 17-A (M-56), 24-p. catalog giving data on cellular, steel floor panels. Provides section-property tables and load tables for several types of sections; includes specifications for installation of cellular-steel subfloors and roof decks. Explains use of cellular sections as electrical raceways; also describes cellular panels with perforated deck backed up by sound-absorbing material, for use as finished ceiling. The R. C. Mahon Co., Detroit 34, Mich.

261. Unistrut Partitions, AIA 35-H-6 (906), 28-p. catalog presenting economical, modular partition system using lightweight-steel framing with variety of paneling materials. Drawings show assembly of metal frame; notes recommend hardboards, plywoods, metals, plastics, or glass as filler panels. In addition, detail sheets give complete data for floor-to-ceiling partitions as well as open-ceiling space dividers. Photos; specifications. Unistrut Products Co., 1013 W. Washington Blvd., Chicago 7, Ill.

doors and windows

★ **334. Daylight Control with Plexiglass Panels,** AIA 26-A-9 (PL-226), 20-p. booklet featuring acrylic-plastic louvered panels for light control. Describes advantages of sawtooth-section panels having aluminum-lacquered upper side for maximum reflectivity and transparent or translucent plastic undersides; provides sun charts to guide in selection of vertical or horizontal installation, transparent or translucent material. Drawings; installation details; specifications. Rohm & Haas Co., Washington Sq., Philadelphia 5, Pa.

335. Aluminum Window-Wall Units, AIA 17-A, 4-p. folder presenting aluminum window-wall framing for use with variety of exterior-paneling materials. Illustrates typical two-story panel wall with projected windows; includes half-size installation details for wall panels as well as typical window-mullion details. Photos; specifications. Brown & Grist, Inc., 25 Tyler Ave., Warwick, Va.

336. Ellison Balanced Doors, AIA 16-A-1 (42), 12-p. publication containing information on balanced, self-closing doors. Describes operating mechanisms located at top and bottom of door; gives details showing space requirements for balance arms and door pivots. Photos of actual installations; installation details; specifications. Ellison Bronze Co., Inc., Jamestown, N. Y.

337. Tuf-flex Doors, AIA 16-N (TF-1), 12-p. brochure featuring tempered, polished-plate glass doors. Illustrates standard sizes and styles of doors—singly or in combinations; gives large-size details showing attachment of hardware; suggests several decorative treatments for doors by sandblasting. Data on physical properties of glass; specifications. Libbey-Owens-Ford Glass Co., 608 Madison Ave., Toledo 3, Ohio.

338. Sash and Door Controls (SDC-55), 24-p. catalog on hardware for controlling swing of doors and windows by friction. Explains operation of concealed and exposed automatic door holders; also gives data on casement and transom adjusters as well as door mutes and latches. Drawings and details of door controls; specifications. Sargent & Greenleaf, Inc., Rochester 21, N. Y.

339. Wooster Metal Doors & Frames, 10-p. brochure on hollow-steel interior and exterior doors with hot-rolled-steel frames. Illustrates stock designs for standard and heavy-duty doors; shows standard frame sections. Also contains data on hollow-metal sliding doors and frames for closets. Specifications; installation details. United Steel Fabricators Inc., Wooster, Ohio.

340. Universal Aluminum Windows, AIA 16-E, file folder enclosing data on aluminum windows and window walls. Full-size detail sheets for awning, projected, casement, and curtain-wall windows show sections as well as drawings of installation in masonry or frame construction. Brochure illustrates each type of window; gives data on hardware; provides specifications and dimensions. Universal Window Co., 950 Parker St., Berkeley 10, Calif.

electrical equipment, lighting

424. Corralume-Corraline-Corralouver Lighting Fixtures, 4-p. folder illustrating three new lighting fixtures for 4-ft rapid-start lamps. Describes construction of surface-mounted units available in 4-ft and 8-ft lengths; shows two fixtures with hinged plastic enclosures and one with metal louvers. Installation details, dimensions, and light-distribution charts for each unit. Day-Brite Lighting, Inc., 5411 Bulwer, St. Louis 7, Mo.

425. Lumenated Ceiling, AIA 31-F-21, 8-p. brochure on luminous ceiling composed of corrugated vinyl-plastic sheets supported on aluminum framework. Gives suggestions for design of lighting system; provides instructions for design of air-conditioning system, using space above ceiling as air plenum and utilizing special plastic diffuser inserted in ceiling. Photos; installation instructions; specificatons. John J. Fannon Sales Co., 1469 Algonquin Ave., Detroit 15, Mich.

426. Federal Pacific Modern Panelboards (3-205), 82-p. catalog on lighting and distribution panelboards. Describes special features of panelboards; gives data for selection of proper equipment. Provides drawings, ratings, and suggested specifications for each panelboard; also includes information on circuit breakers. Federal Pacific Electric Co., 50 Paris St., Newark 1, N. J.

427. Holophane Datalog, AIA 31-F-2 (D-55-25), 68-p. reference guide on commercial, institutional, industrial, and outdoor lighting. Introduction outlines fundamentals of lighting design; provides table of recommended illumination levels, room index for spacing of lights, and coefficients of utilization for several lamps. Section on individual fixtures gives data on application, performance, and installation; also includes drawings, dimensions, and charts of photometric tests. Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.

428. Lightolier Lamp Catalog, 16-p. brochure featuring line of portable lighting fixtures. Photos and drawings illustrate floor, table, and wall lamps; descriptions give data on dimensions, materials, and colors. Lightolier, Inc. P20-1 Jersey City, N. J.

429. National Electric Wireways, AIA 31-C-62 (445), 20-p. bulletin providing information on metal raceways featuring hinged cover which permits access to wires and cables. Gives selection data for 4"x4" and 6"x6" raceways; contains dimensioned drawings for all fittings. Also includes instructions for suspending raceways from ceilings; shows typical installations. National Electric Products Corp., Pittsburgh 22, Pa.

430. Wiremold Catalog and Wiring Guide (20), 136-p. manual containing information on metal raceways for electrical wiring. Describes exposed raceways as well as overfloor conduit for supplementing existing wiring systems; gives data on continuous-outlet system for convenient location of electrical outlets. Presents drawings, dimensions, and capacities for each type of raceway; also includes data on fittings. The Wiremold Co., Hartford 10, Conn.

finishers, protectors

508. Del Protective Coatings, 12-p. brochure giving data on plastic, silicone, and rubber-base coatings for protection of metal, masonry, or wood surfaces. Describes special features of each product, lists recommended uses, and provides instructions for application; also includes information on synthetic-rubber calking and glazing compound. Photos; chemical-resistance chart. David E. Long Corp., 220 E. 42 St., New York 17, N. Y.

insulation (thermal, acoustical)

612. Simplex Acoustical Ceilings for Corridors, AIA 39-B, 4-p. pamphlet describing perforated-aluminum acoustical ceiling designed especially for corridors. Illustrates installation of ceiling, without overhead suspension, in corridors up to 8' wide; shows ceiling, in corridors up to 11' wide, using one central suspension rod. Specifications; photos. Simplex Ceiling Corp., 552 W. 52 St., New York 19, N. Y.

613. Lumaskin Data Sheets, AIA 37-C-3, file folder containing data sheets on creped, edge-reinforced aluminum-foil insulation. Detail sheets show recommended application of insulation in wood-frame or brick-veneer constructions; data pages outline vapor-sealing and insulating properties of material. Angier Corp., Framingham, Mass.

614. Alfol Insulation, AIA 37-C-3, 28-p. reference manual describing aluminum-foil insulation with vapor-barrier backing. Explains how aluminum foil prevents conduction, convection, and radiation of heat through walls; describes how vapor barrier eliminates damages by moisture. Gives drawings and data on six types of reflective insulation, each designed for specific purpose. Photos; installation data; tables. Reflectal Corp., 310 S. Michigan Ave., Chicago 4, Ill.

sanitation, plumbing, water supply

706. Ice Skating Rinks: Their Construction and Maintenance, 36-p. report on construction of artificial ice-skating rinks, prepared for architects, engineers, and owners. Presents data for design of rinks; gives recommendations for selection of piping material. Explains factors causing corrosion in refrigerating pipes and outlines methods for controlling deterioration. Photos, drawings; suggestions

(Continued on page 169)

PROGRESSIVE ARCHITECTURE, 430 Park Avenue, New York 22, N. Y. I should like a copy of each piece of Manufacturers' Literature circled. We request students to send their inquiries directly to the manufacturers.

133	258	340	613	821
134	259	424	614	916
135	260	425	706	917
136	261	426	707	918
137	334	427	708	919
138	335	428	709	920
254	336	429	817	45
255	337	430	818	46
256	338	508	819	47
257	339	612	820	

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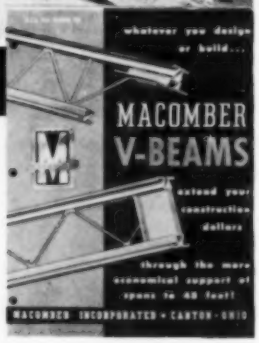
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STRUCTURALS

The Wiley house, New Canaan, Conn., Philip C. Johnson, Architect, New Canaan, Conn.

Photograph by Ezra Stoller, New York, N. Y.

oriented *to* tomorrow!

floor of *today*...and a million *yesterdays!*

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—Arch. 13J-Ma. for full technical data.

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Significant and eminently sound is Architect Philip Johnson's use of "the finest floor that grows" in the upper, or guest, area of this emphatically modern home. For the genial *foot-friendliness* of Northern Hard Maple speaks eloquent *welcome* to all who enter. Its bright tones return both sunshine and lamplight graciously, softly. Its tough, close grain sands easily to mirror smoothness, responds to quick, inexpensive finishing and maintenance, fights abrasion and denting, endures for generations. Regular strip or block and pattern designs, in standard, warranted **MFMA** grades, offer endless variety. *And* Northern Hard Maple costs no more than comparable grades of other hardwood species.

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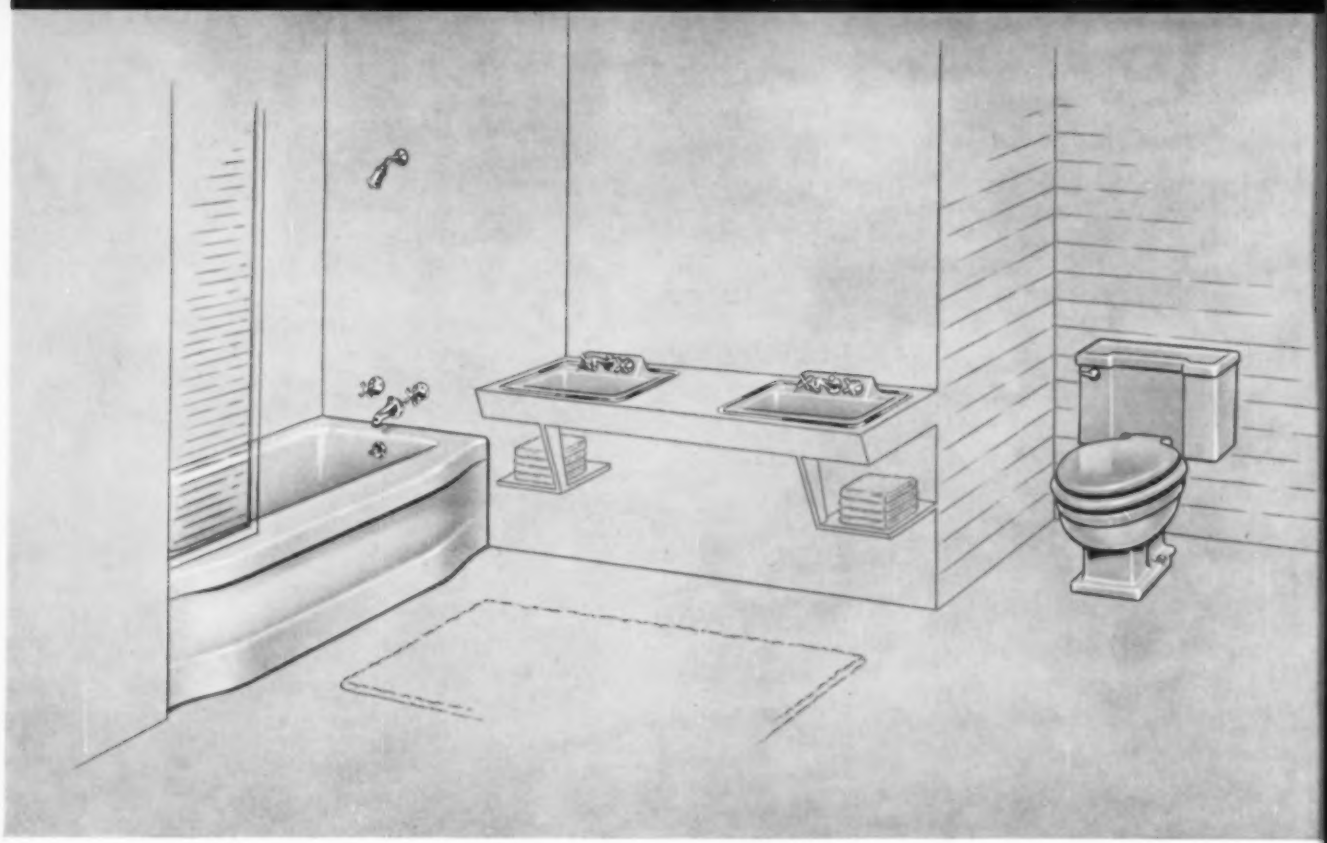
NORTHERN HARD MAPLE

Bathrooms to Make Your H



Here's a combination of fixtures that makes the perfect Master bathroom arrangement for your homes.

The Marquette tub, graceful in contour, offers such important features as safety bottom, wide seat rim and safety hand grip. The Carlton closet provides attractive elongated bowl, syphon-jet design, dependable and quiet operation. Twin Lowell Lavatories, of Hi-Style vitreous china, are the smartest thing in counter-top installation.

All are featured in Beautyware Tropical Coral, one of the most inviting of fixture colors, blending perfectly with a variety of delightful decorating themes.

And Providing a Most Practical "Back-to-Back" 2-Bath Installation

Specify

B-300	Marquette right outlet tub
T-8115	Bath and shower fitting
T-8400	Trip-lever drain
B-6402	Carlton elongated syphon-jet closet
No. 54	Olsonite seat and cover
B-3500-HS	(2) Lowell vitreous china lavatories (with fittings mounted)
B-3085	(2) Mouldings

BRIGGS MANUFACTURING COMPANY
300 Buhl Building, Detroit 26, Michigan

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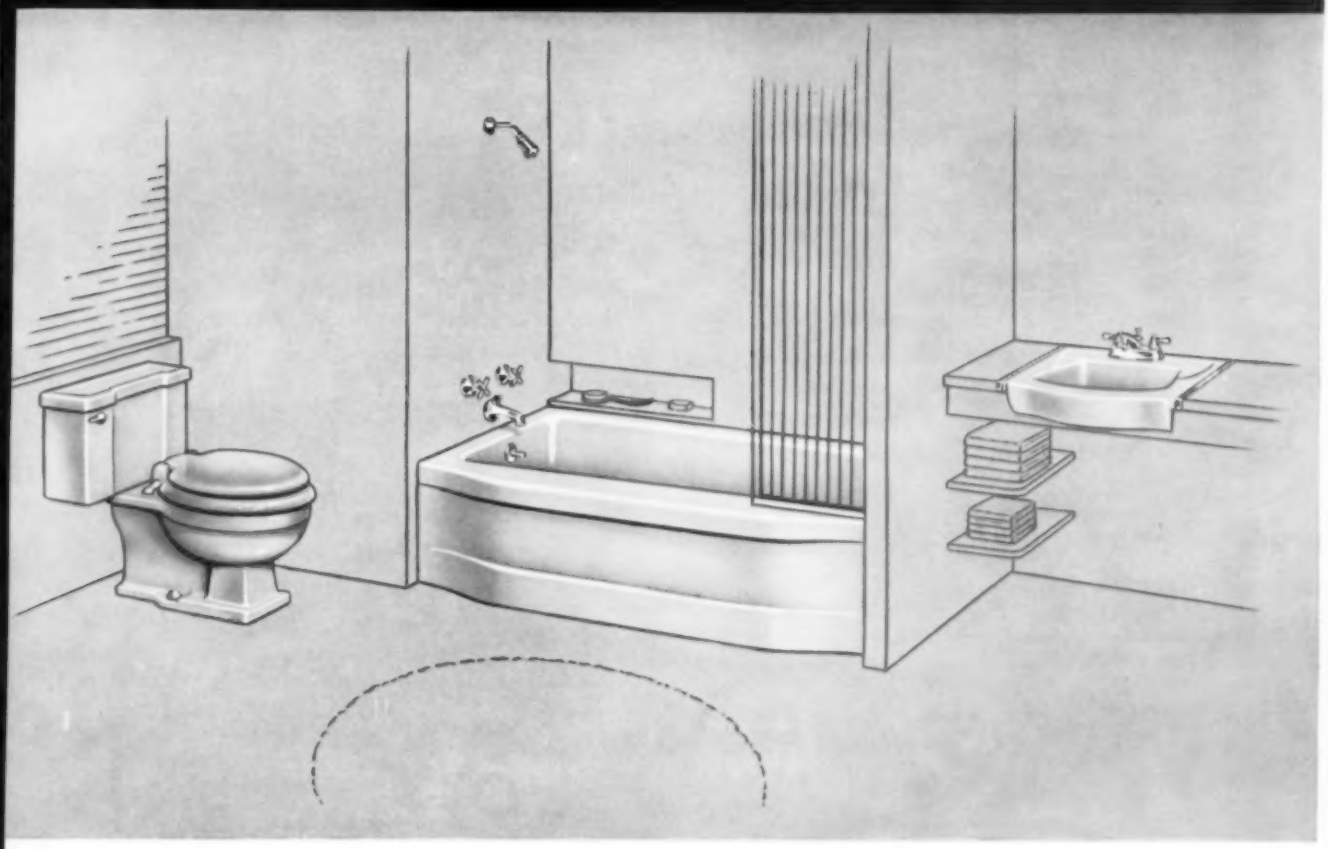

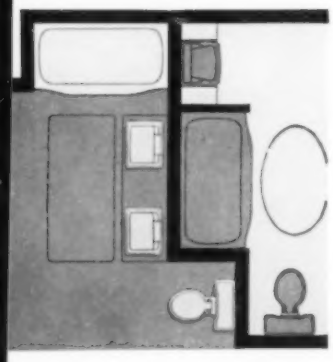

Make your homes extra desirable by equipping them with a second bathroom like this—in Beautyware Pearl Gray.

The Marquette tub is full sized, functional in design, and built for luxurious bathing in every respect. The Prince closet, one of the most popular styles, features close-coupled, reverse-trap design and time-saving two-bolt installation. The new Lindsay open front lavatory, has a deep bowl, wide ledge and builds into an economical 16 inch counter top.

This second Beautyware bathroom is carefully laid out for back-to-back installation with the Master bathroom—requiring a minimum of plumbing.

Specify

B-301	Marquette left outlet tub
T-8115	Bath and shower fitting
T-8400	Trip lever drain
B-6420	Prince reverse trap closet
No. 50	Olsonite seat and cover
B-3570	Lindsay vitreous china lavatory
B-3070	Union strips
T-8820-S	Centerset fitting

BEAUTYWARE

C. K. Whiteside, President, Great Plains Life Insurance Co., Lubbock, Texas

Architect: David S. Castle.
General Contractor: BMFP Construction Co.
Mechanical Contractor: Beals Plumbing and Heating.
Consulting Engineer: Leonard E. Kanto.

With 155,453 sq. ft. of floor space, Great Plains Life Building offers the ultimate in air conditioned comfort for a variety of tenants – including dentists (above, one of several), doctors, oil-exploration offices, a bank, a radio station (below), and a restaurant.

In Texas, even a day's temperature change can be BIG!

Requiring heating in the morning and cooling by midafternoon, Great Plains Life Building depends on American Blower equipment

In addition to equipment for complete central systems – American Blower offers packaged air conditioners for offices, stores, industrial plants, and similar applications.

Heating and cooling on the same day? That's what American Blower air conditioning equipment provides in the new 20-story Great Plains Life Insurance Building, Lubbock, Texas. For, on some days, outdoor temperatures jump from 25° F. in the morning to 82° F. by midafternoon!

Using American Blower multi-zone units, each floor is divided into four air conditioning zones . . . which can be controlled separately to allow individual comfort levels for tenants.

And despite occasional sand storms –lasting from one to three days, with winds up to 70 mph – the indoor atmosphere always remains fresh and clean, for it is filtered, conditioned, and distributed at over 220,000 cu. ft. per min.

Why not investigate American Blower equipment, if air conditioning is in *your* plans? A call to our branch office near you will bring helpful information, and the assistance of American Blower engineers.

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CANADIAN SIROCCO COMPANY, LTD., WINDSOR, ONTARIO
Division of American-Standard

AMERICAN 75 ANNIVERSARY YEAR **BLOWER**

Air conditioning equipment for every business

for minimizing maintenance. A. M. Byers Co., Clark Bldg., Pittsburgh 22, Pa.

707. Sunroc Water Coolers, AIA 29-D-42, 36-p. file folder enclosing data sheets on water coolers and milk dispensers. Illustrates several models of forced-air-cooled, water-cooled, and electric water coolers; shows recessed-panel cooler for use with wall fountains. Also describes construction and operation of refrigerated milk dispensers. Drawings, dimensions, and specifications for each model. Sunroc Corp., Glen Riddle, Pa.

708. B & G Universal Pump (HC-855), 4-p. circular on centrifugal pump developed for circulating hot-water heating and chilled-water cooling as well as for boosting pressures in tall buildings. Lists special properties of motor and pump which feature silent, vibrationless operation; gives isometric drawing showing construction of pump. Capacity chart; dimensions; specifications. Bell & Gossett Co., Morton Grove, Ill.

709. Enpo 5-in-1 Pumps (54), 12-p. catalog describing turbine pump designed for heavy-duty operation. Explains five equally satisfactory uses for pumps: portable, submersible pump; submersible pump with indoor tank controls; above-grade tankless pump; above grade with 42-gal tank; and above grade with deep-well jet. Gives operational drawings; technical data. The Piqua Machine & Mfg. Co., Piqua, Ohio.

specialized equipment

817. Metalab Laboratory Equipment, AIA 35-E (55-A), 12-p. booklet presenting line of steel laboratory furnishings. Describes construction of standard laboratory cabinets and tables; shows sectional units for custom-built installations. Drawings; dimensions; data on service fixtures. Metalab Equipment Co., 210 Duffy Ave., Hicksville, N. Y.

818. Spacemaster Visual Merchandising Equipment (55S), 132-p. catalog on adjustable metal hardware for merchandising displays. Photos suggest ideas for wall and counter displays; drawings indicate equipment used. Equipment section gives drawings and dimensions for adjustable brackets, standards, uprights, racks, and special display frames. Reflector Hardware Corp., 2235 S. Western Ave., Chicago 8, Ill.

819. Sheldon Homemaking Equipment, 68-p.

820. Sheldon Science Furniture, 80-p.

Two booklets on specialized equipment for secondary schools. First catalog discusses activities of homemaking curriculum; gives suggested layouts of homemaking suites for various size schools. Also presents drawings, dimensions, and description on furnishings; specifications. Second catalog explains requirements for science-education facilities; presents guide for layout of laboratories. Includes information on laboratory equipment; specifications. E. H. Sheldon Equipment Co., Muskegon, Mich.

(Continued from page 163)

821. Viking Sprinkler Equipment, 120-p. catalog containing information on automatic sprinkler equipment. Individual brochures explain wet, dry-pipe, deluge, and preaction sprinkler systems; data sheets show installation and operation of heads for each type of system. Also contains data on control valves and automatic fire-door releases. Photos; dimensions. The Viking Corp., Hastings, Mich.

surfacing materials

916. Savannah Oak Paneling, 12-p. brochure on prefinished oak paneling. Explains surface preparation for installing interior panels; gives recommended procedure for applying panels and trim. Also shows matching, prefinished moldings. Photos; drawings. Georgia-Pacific Plywood Co., 270 Park Ave., New York 17, N. Y.

(Continued on page 170)

IN STEP with advanced school design...

HAWS Deck-Type Drinking Fountains meet the demands of your school building program for improved water facilities inside the class room! Your choice of optional combinations of HAWS Faucets and Fixtures make these fountains adaptable to *all modern classroom needs.* Teachers and students alike, benefit from HAWS!

Series 2400
Model 2444

Series 2000
Model 2050

Series 2300
Model 2350

Series 2200
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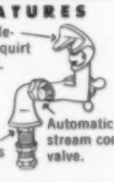
FEATURES

Shielded, angle-stream, anti-squirt fountain head.

Vandal-proof socket flanges and lugs.

Automatic stream control valve.



For the **latest** school design...

Specify the **latest**... HAWS DECK-TYPE DRINKING FOUNTAINS!

Write today... for the New HAWS Catalog!

In addition to the complete line of fountains, HAWS also features electric water coolers and emergency eye-wash fountains... and, **KRAMER FLUSH VALVES,** for all plumbing fixtures that require an automatic closing valve.

HAWS DRINKING FAUCET CO.

1443 FOURTH STREET (Since 1909) BERKELEY 10, CALIFORNIA

p/a manufacturers' literature

(Continued from page 159)

917. Dodge Cork Tile, AIA 23-G (56), 8-p. pamphlet featuring vinyl-cork and standard-cork tiles. Photos show actual installations of both types of tile; color reproductions indicate natural-cork tones and 12 additional colors. Properties and dimensions for both materials; specifications for installation on floor or wall. Dodge Cork Co., Inc., Lancaster, Pa.

918. Formica Architect's Kit, AIA 35-C-12, envelope containing brochures, specifications, and color card of laminated-plastic surfacing material. Features actual samples of two new finishes—tawny walnut and autumn walnut. Brochures include color photos as well as details for construction of sink tops, counters, table tops, and veneered wall panels; architectural data sheets cover general specifications, properties, and application of plastic sheeting. The Formica Co., 4614 Spring Grove Ave., Cincinnati 32, Ohio.

919. Processed, Colored, Brick Tile, 4-p. circular explaining process of making colored, scored concrete floors. Shows use of special tools to score surface; describes installation of floors with rough or polished-and-waxed surface. Color photos illustrate several patterns. Ornamented Concrete, Inc., P. O. Box 3426, Carmel, Monterey County, Calif.

920. Sayre & Fisher Brick, 8-p. brochure on face brick. Drawings show standard shapes in pavers, bull nose, and stretchers; color photos illustrate shading of 8 popular bricks, available in standard, jumbo, or paver sizes with variety of surface textures. Photos of recent installations. Sayre & Fisher Brick Co., Sayreville, N. J.

Stark Tiling Guide, slide calculator for quickly selecting units and estimating quantities of glazed facing tile required for any job. Horizontal and vertical coursing scales give number of 8″ or 12″ units needed; sill, lintel, and jamb guides indicate number of vertical courses and shape of units for door or window openings. Simple instruction sheet—with sample problems—is included. Available only on direct application to Stark Ceramics, Inc., Box 230, Canton, Ohio. 50¢

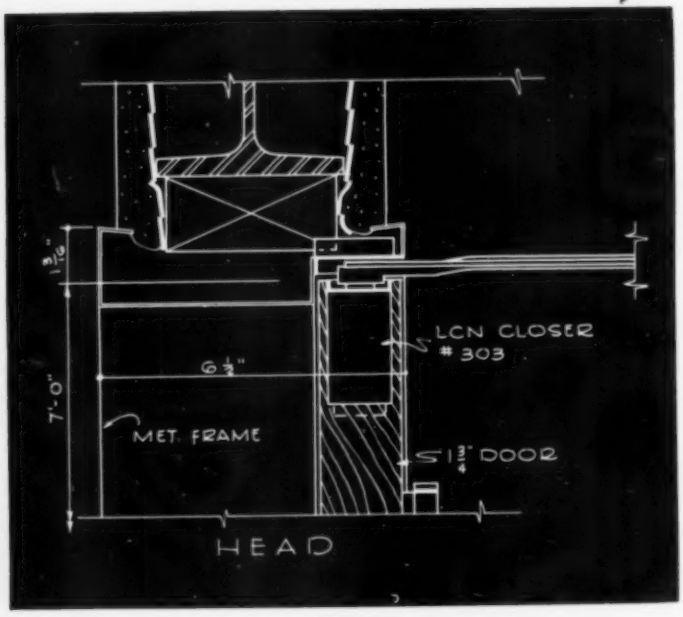
interior furnishings

45. Contemporary Home Designed Around the Kitchen (2), folder containing material on home designed by Architect Harwell Hamilton Harris. Perspective drawings show kitchen-dining area with adjoining terrace; plans show relationship of kitchen to rest of house; description points out unique features of kitchen design. Frigidaire Div., General Motors Corp., Dayton, Ohio.

46. Amana Built-In Refrigerators-Freezers, 8-p. brochure featuring freezers and refrigerators for built-in installations. Drawings show styling and dimensions of units; sketches illustrate units inserted in cabinet groups and in walls. Amana Refrigeration, Inc., Amana, Iowa.

47. Post Furniture for the Drafting Room, 16-p. bulletin on wood and steel furnishings for architectural offices. Shows standard sections for interlocking, built-up filing cabinets; also illustrates tracing files, drafting tables, and chairs. Dimensions and description for each piece of equipment. Frederick Post Co., 3650 N. Avondale Ave., Chicago 90, Ill.

Herman Miller Collection, 124-p. hard-cover notebook presenting newest furniture designs by George Nelson and Charles Eames, with fabrics by Alexander Girard. Photos and drawings show storage units, bedroom furnishings, dining tables and chairs, and sofas; provides descriptions and dimensions for each piece of furniture. Also includes color chart of fabrics, woods, and color finishes. Available only on direct application to Herman Miller Furniture Co., Zeeland, Mich. $5



CONSTRUCTION DETAILS

for LCN Closer Concealed-in-Door Shown on Opposite Page

The LCN Series 302-303 Closer's Main Points:

1. An ideal closer for many interior wood doors
2. Mechanism concealed within door; flat arm not prominent, and provides high closing power
3. Door is hung on regular butts
4. Closer is simple to install and to adjust
5. Used with wood doors; wood or metal frames
6. Practically concealed control at little more than exposed closer cost

Complete Catalog on Request—No Obligation
or See Sweet's 1956, Sec. 18e/L

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Vincent G. Kling, *Architect*

MODERN DOOR CONTROL BY *LCN* · CLOSERS CONCEALED IN DOOR

JEFFERSON MEDICAL COLLEGE HOSPITAL, PHILADELPHIA, PENNSYLVANIA

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page

YOU KNOW YOUR GENERAL CONTRACTOR...

who are his "subs"?

If you permit your general contractors to submit bids without telling you the names of the subcontractors these bids are based on – you are leaving the door open for "bid peddling." If you know the "subs," the general contractor can't change later to others who are willing to cut prices – and quality.

Know your "subs"

– better yet, ask general contractors to get bids only from subcontractors you approve in the first place. And, for the plumbing contract – your best bet is a contractor who belongs to the National Association of Plumbing Contractors. By their membership, these plumbing contractors publicly announce conformance to the rigid standards N.A.P.C. has developed.

You always know – when an N.A.P.C. member does the plumbing – that you get the best job available, at a fair price.

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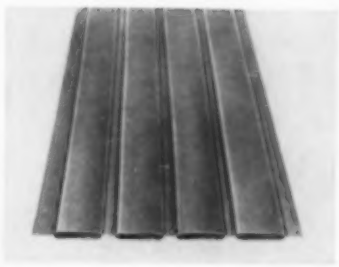
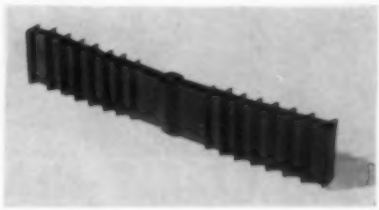
Photo: Robert C. Lautman

Recently completed Student Activities Building at University of Maryland is of rigid-steel-frame construction with Tectum wood-fiber decking laid over roof purlins (above). *Unlike many other similar structures, it has a radiant-heating system. Heated water is circulated through wrought-iron piping embedded in 30" concrete treads supporting 26 rows of terrace type seating* (right). *Piping under straight runs of seats is in form of simple grids while semigrids were installed in curved sections at either end of auditorium. A. M. Byers Co., 1801 Clark Bldg., Pittsburgh 22, Pa.*



New mill product—in form of single strip or sheet of solid copper, brass, or aluminum—has tubes which can be inflated to desired running lengths in a variety of shapes or sizes (left). *Except for expandable portions, the metal is a solid strip and does not consist of two pieces of metal brazed, welded, and rolled together. Sent to consumer uninflated. Revere Copper and Brass Inc., 230 Park Ave., New York 17, N.Y.*

All-aluminum roof exhauster, built entirely of heavy-wall, extruded sections (above); *all joints are welded. Because weight is less than one-third that of galvanized-steel ventilator, it can easily be installed by two men. Low silhouette is only 21" high. Iron Lung Ventilator Co., 5403 Prospect Ave., Cleveland 3, Ohio.*



Durajoint and Duraseal, thermo-plastic polyvinylchloride waterstops, are noncorrosive, withstand water pressure up to 350' plus head of water, withstand –80F to 180F temperatures, will not become brittle with cold, have unlimited life expectancy, and are 100% waterproof. Electrovert Inc., 489 Fifth Ave., New York 17, N.Y.

New 3-wire, 2-wire combination duplex grounding receptacle (right) *provides for two separate circuits with common ground. Supplies current from same outlet to operate window air-conditioning unit and any appliance requiring conventional service. The Arrow-Hart & Hegeman Electric Co., Hartford, Conn.*

Oval swimming pool constructed of laminated glass fibers has over-all size of 15'x30' with depth from 3' to 5'. This 10,000 gal pool is assembled from four sections which are joined together before lowering into excavation (right). *Cinderella Glass Pool Co., 9400 Santa Monica Blvd., Los Angeles 46, Calif.*

p/a products

(Continued from page 173)

air and temperature control

"Central" Air-Conditioning System: self-contained, centralized conditioner simplifies installation of residential air-conditioning system. Air-cooled unit, which requires no refrigerant lines, water-pipe connections, or remote condenser, may be placed in attic, basement, utility space, or even outside home; unit can also be connected to existing warm-air duct system. Low-voltage thermostatic control is standard equipment; diffusers, return-air grills, and prefab glass-fiber ducts are furnished separately. Two-hp unit will cool 1500-sq-ft home; 3½-hp unit will cool 2200 sq ft. Amana Refrigeration, Inc., Amana, Iowa.

Modular Weathermaster Units: room units for high-velocity air-conditioning system have been redesigned for more attractive appearance and better performance. Modular units, for placement under large glass walls, are one-ft high; intake louvers are located on front panels while conditioned air is discharged through adjustable plastic grills on top surface. New engineering features include polyethylene discharge nozzles to provide greater air circulation with less fan hp and sound-attenuating chamber completely lined with absorbent material. Two other units have also been added, for new and existing buildings having less window area. Carrier Corp., Syracuse 1, N. Y.

Deflector-Top Glassheaters: electric glass-panel heaters feature metal deflector to prevent wall streakage. Units, constructed of specially tempered glass, fused with aluminum strips, project radiant heat; units are claimed to insure humidity above 30 percent and temperature variance from floor to ceiling of less than five degrees. Frames, with 2¼"-wide deflector top, may be painted to match walls; sizes range from baseboard strips, 9⅜"x47½", to large wall panels, 19"x26⅝". Continental Radiant Glass Heating Corp., 1 E. 35 St., New York 16, N. Y.

construction

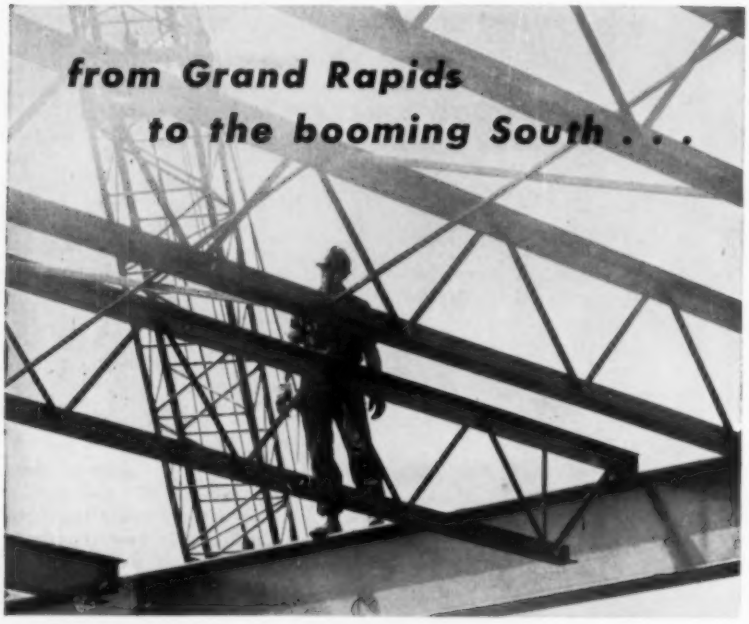
Holostud Partition: new metal partition framing, developed for hollow nonload-bearing walls, is suitable for homes as well as for schools, office buildings, and apartments. Open-web design of studs permits horizontal or vertical installation of electrical conduits and pipes; web members may be cut to accommodate large ducts. Framing with metal or gypsum lath, gives fire rating up to 2 hr; lightweight studs are made in 2½", 3¼", 4" and 6" widths, up to 26' high. National Gypsum Co., 325 Delaware Ave., Buffalo 2, N. Y.

doors and windows

PD17 Calking Compound: plastic-base calking compound is claimed to remain workable even under most-adverse working conditions. Nonstaining, polymerized-plastic-base material is especially recommended for use with fiber-board and decorative products; calking may be used with metals, slate, masonry, and wood as well. Elastic skin, which forms shortly after application, enables compound to remain watertight, airtight, and unshrinkable. Armstrong Cork Co., Lancaster, Pa.

Yale & Towne Sliding-Door Hardware: two new series of sliding-door hardware were developed to accommodate growing trend toward sliding doors. Sets include heavy-gage-aluminum tracks, heavy-gage-steel hangers, floor guide, nylon wheels, and door pulls; tracks contain built-in ridges to prevent derailment of wheels and hangers adjust to variations in height. Cost-saver series is for doors of 75 lb max weight; Deluxe series accommodates doors up to 100 lb. Yale & Towne Mfg. Co., Chrysler Bldg., New York 17, N. Y.

(Continued on page 176)



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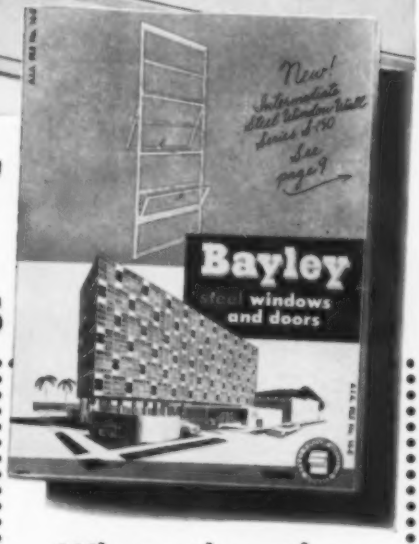

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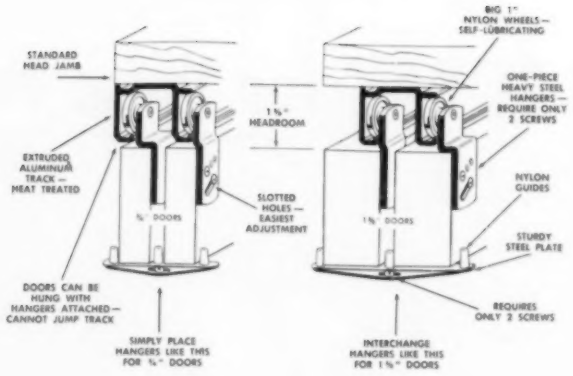
p/a products

(Continued from page 174)

Thriftee-Pak Sliding-Door Hardware: packaged sets of sliding-door hardware, designed for low-cost high-quality market, will accommodate either ¾" or 1⅜" doors. Package includes extruded-aluminum track, one-piece heavy steel hangers with 1" self-lubricating nylon wheels, and two steel door-guide plates with nylon guides—short plate for ¾" doors, longer one for 1⅜" doors; by interchanging front and rear sets of hangers, hardware will fit either door size. Additional feature of hardware is slotted screw holes in hangers which permit easy, accurate placement of doors. Hardware is packaged for two 2′, 2′-6″, or 3′ doors; three 2′ units; and four 2′ units. Sterling Hardware Mfg. Co., 2345 W. Nelson St., Chicago 18, Ill.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Remcon Low-Voltage Wiring Device: new wiring system allows control of any light or outlet from as few or as many locations as desired. While designed to provide flexibility in home lighting effects, system is also suitable for industrial and institutional buildings. Relay, with miniature built-in transformer, acts as completely independent circuit; relay, wired into outlet box, is connected to as many switch locations as desired and one switch can control several relays. Pyramid Instrument Corp., Lynbrook, N. Y.

finishers, protectors

Fire-Ban Coating: mineral-composition coating, compounded from Food Machinery and Chemical Corporation's magnesia chemicals, is incombustible. Coating is especially recommended for protection of combustible surfaces; compound, which resembles ordinary plaster, is applied by trowel, spray, or brush. Compound is said to adhere to any surface without lathing; maintenance costs are reduced because color pigments are mixed into coating. E. H. O'Neill Co., 2533 S. 50 Ave., Cicero 50, Ill.

insulation

Q-Duct Silencing System: prefab duct sections provide acoustical insulation for air-conditioning systems. Perforated, galvanized sheet-metal baffles in duct are backed up with glass-fiber insulation; sections, designed for insertion in duct systems, are available in 148 standard sizes to meet dimensional and performance requirements. Noise-reduction curves as well as pressure-drop data are prepared for each section; duct 2′ to 10′ long is claimed to give as much noise control as conventional lined duct 30′ to 100′ long. Industrial Acoustics Co., Inc., 341 Jackson Ave., New York 54, N. Y.

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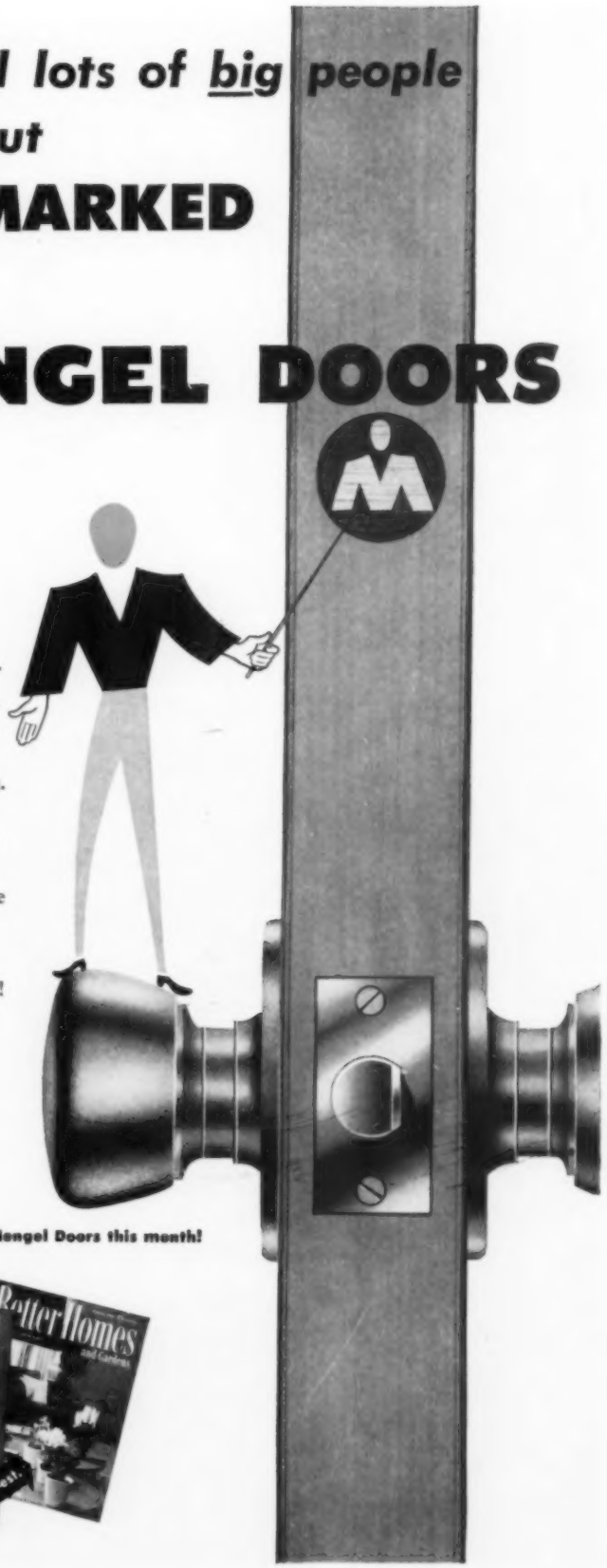

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J.S. STAEDTLER, INC. HACKENSACK, NEW JERSEY

p/a reviews

books received

New Furniture. Vol. 3. Edited by John Peter. George Wittenborn Inc., 38 E. 57 St., New York 22, N. Y., 1955. 173 pp., illus., $8.50

Idea 55. International Design Annual, Vol. 3. Edited by John Peter. George Wittenborn Inc., 38 E. 57th St., New York 22, N. Y., 1955. 157 pp., illus., $8.50

Building Planning and Design Standards. Harold R. Sleeper. John Wiley & Sons, Inc., 440 4th Ave., New York 16, N. Y., 1955. 331 pp., illus., $12

Watercolor Made Easy. Herb Olsen. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1955. 112 pp., illus., $7.50

Watercolor Methods. Edited by Norman Kent. Watson-Guptill Publications, Inc., 24 W. 40 St., New York 18, N.Y., 1955. 128 pp., illus., $7

Man And The Winds. E. Aubert de la Rue. Philosophical Library Inc., 15 E. 40 St., New York 16, N. Y., 1955. 206 pp., illus., $6

The Pahlmann Book of Interior Design. William Pahlmann. Thomas Y. Crowell Co., 432 Fourth Ave., New York 16, N. Y., 1955. 256 pp., illus., $7.50

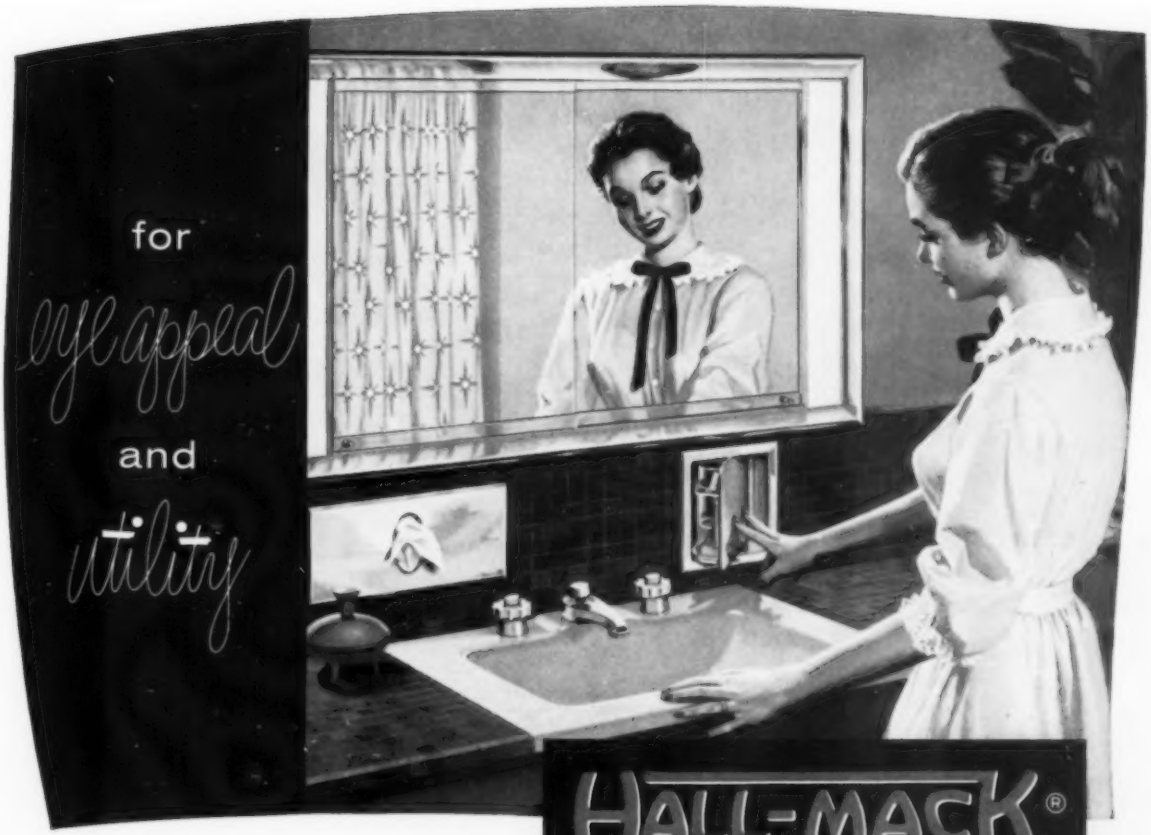
Architectural Engineering. Editors of *Architectural Record.* F. W. Dodge Corp., 119 W. 40 St., New York 18, N. Y., 1955. 500 pp., illus., $11.50

dispassionate appraisal

Latin American Architecture Since 1945. *Henry-Russell Hitchcock. Museum of Modern Art, 11 W. 53 St., New York 19, N.Y., 1955. 204 pp., illus., $6.50*

If the Museum of Modern Art in New York had done no more in its 25-year history than publish and exhibit collective surveys of the architecture of European and American countries, it would be well worth our support. There is nothing more clarifying to the architect than seeing the basic problems and premises of his craft demonstrated outside the sphere of his immediate influence. There is a laboratory quality to this sort of demonstration that allows an objective and dispassionate appraisal of where we stand.

(Continued on page 180)



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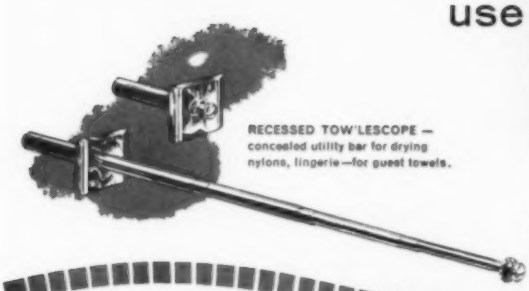

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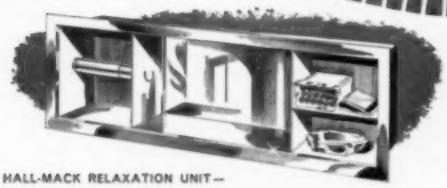

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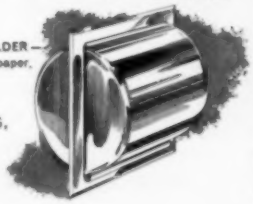

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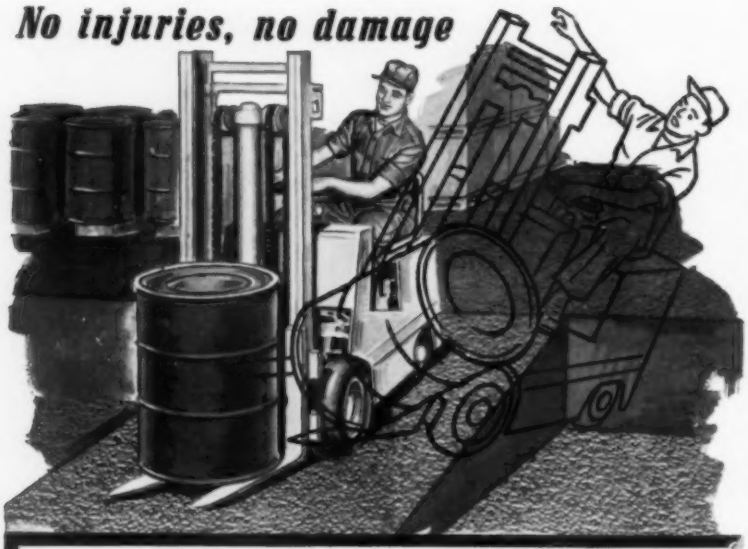

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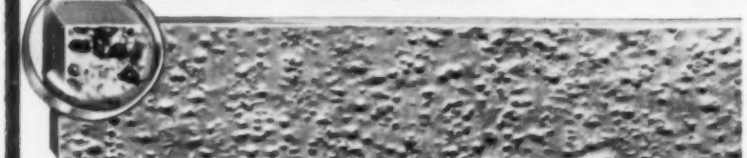

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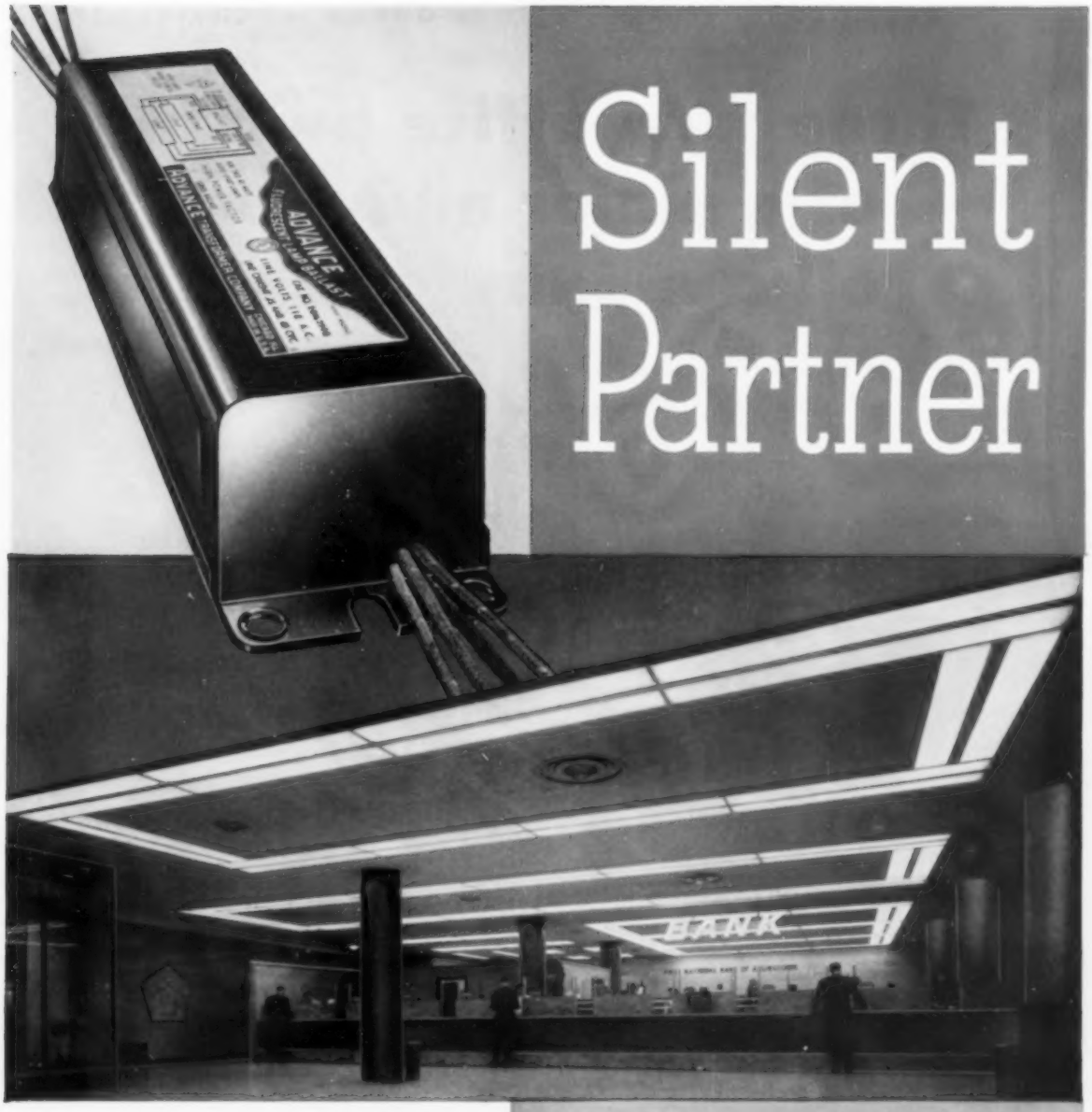
reviews

(Continued from page 178)

The current museum show and the volume published on this material, *Latin American Architecture since 1945*, by Henry-Russell Hitchcock, are particularly interesting and rewarding from this "laboratory" viewpoint. The architecture of the leading South American countries is so uncompromisingly modern and technological that it puts the whole concept of building technology to the supreme test. Whatever the shortcomings of the modern architects of South America might be, lack of courage is not among them. Here is a surprisingly homogeneous array of building—surprising, if one considers the vast land masses separating capital from capital—that shrinks from nothing. All building categories, from weekend house to university town and gigantic skyscraper, and all modern building materials and design approaches are used. The over-all results, as might be expected, are almost equally divided between failure and success. It is the particular merit of Hitchcock's presentation that he directs the reader of his book or the visitor to the exhibition toward the positive points as well as the implications of numerous shortcomings. In an introductory chapter that is much more impersonal and dispassionate than, for instance, his comments in a previous volume, Hitchcock points to three main causes for this unprecedented preponderance of modern building concepts. First, the lack of native building materials, such as stone and timber, and also of structural steel, which had to lead to large-scale experimentation in concrete. Second, there is the international character of the architectural profession, with Italian, Spanish, German, French descendants bringing to this new land the varied background of their training. And third, there is the climatic uniformity of the South American highlands—cities lying anywhere from 3000 to

(Continued on page 184)

Silent Partner



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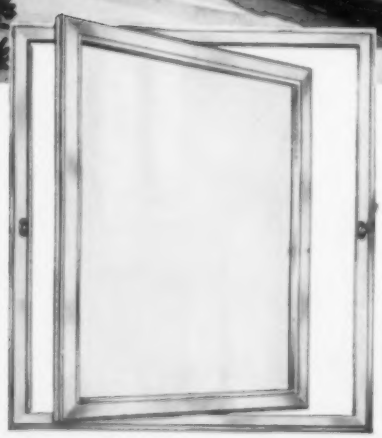

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General Contractor:
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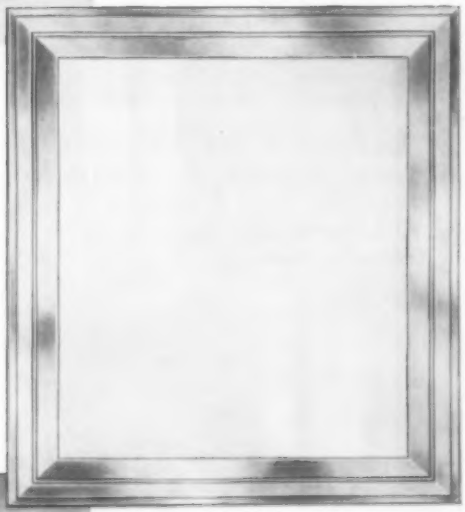

Minneapolis Building
General Contractor:
Naugle-Leck, Inc.,
Minneapolis, Minn.

Architectural Metal Fabricators & Erectors:
Crown Iron Works,
Minneapolis, Minn.

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Here's proof of Feralun durability! These treads were installed in the Camden, New Jersey plant of the Radio Corporation of America, *when the building was erected in 1923—over 33 years ago.* After recent inspection, RCA reports, "The Feralun Treads are still in use and have given us satisfactory service to date."

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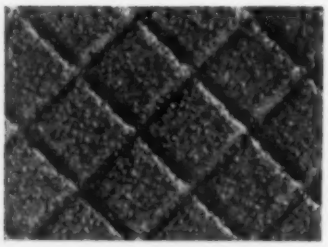
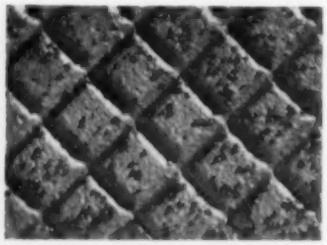
This is a typical example of the long life and economy of Feralun Safety Treads. The reason? Quality manufacturing methods assure full and even distribution of abrasive particles throughout the wearing surface. In fact, American Abrasive Metals Company is the *only* manufacturer who guarantees *the amount of distribution of abrasive grains* throughout their treads.

For maximum safety and longest life, insist on Feralun for treads, nosings, thresholds, floor plates and elevator sills. See Sweet's Catalog 1956, 13b/Am.



Here is an unretouched photograph of a *Feralun* tread taken after acid treatment. (Acid is used to eat away the metal base so as to isolate the actual abrasive content of the tread.) Note the full and even distribution of abrasive—for greater, safety, longer wear.



Here is an unretouched photograph of an abrasive tread, purchased on the open market of the type often offered as an equal of Feralun, after the identical acid test. Note the meager amount of abrasive and spotty distribution.

AMERICAN ABRASIVE METALS CO., IRVINGTON 11, N. J.

reviews

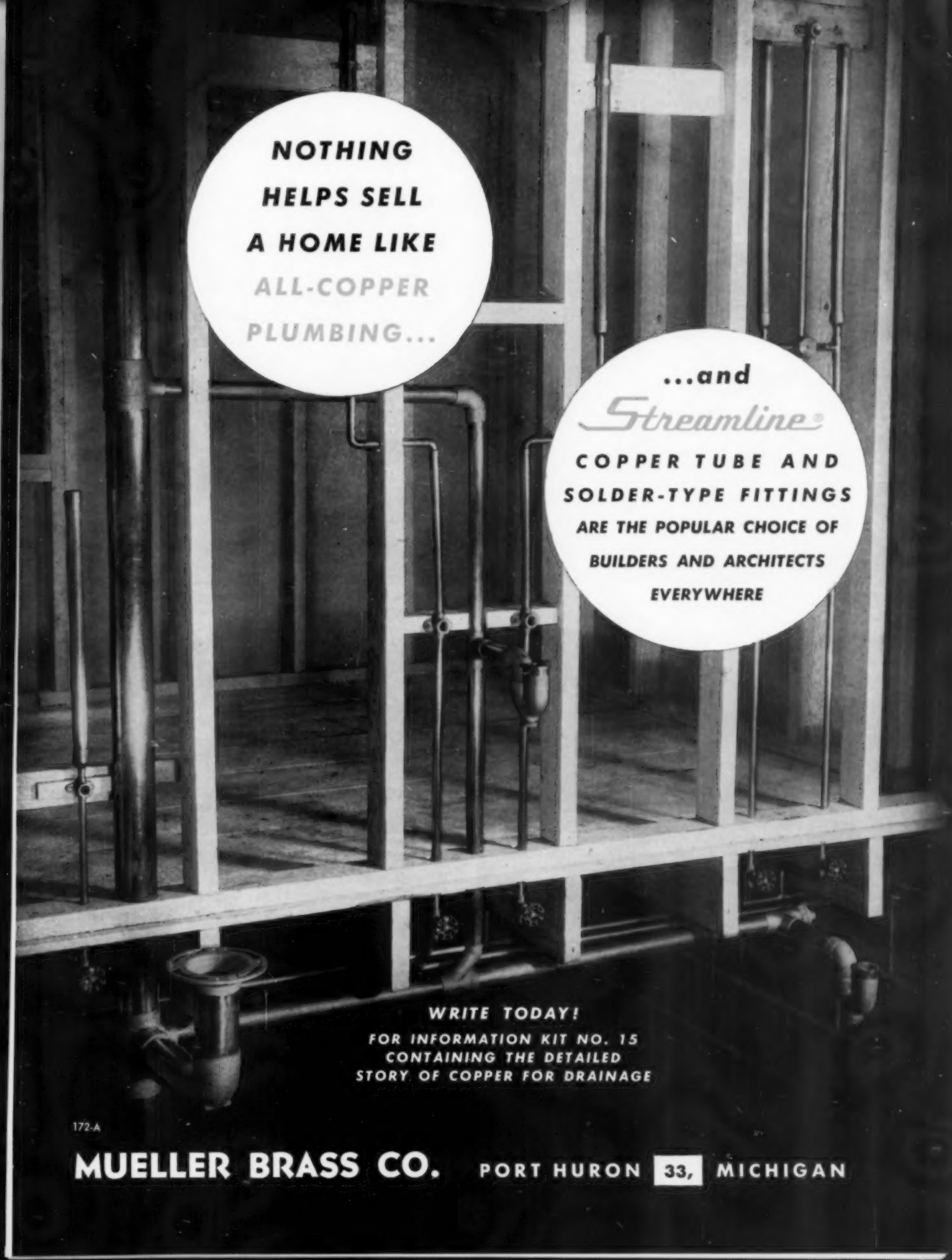
(Continued from page 180)

8000 feet above sea level with similar problems of intense sun radiation, irregular building sites with vast and inspiring vistas, and (a feature that is particularly striking in contrast to Europe and North America) an abundance of air space around each building that provides "for free," so to speak, an impressive monumentality. The long Iberian tradition of decorated wall surfaces, and the generic delight of the Spanish-Indio population in strong color effects, has provided the key note for the decorative richness of this new architecture.

Professor Hitchcock gives a particularly interesting analysis of the South American concept of "architecture as art," which lends to this uncompromisingly modern idiom a special note. The engineer is subservient to the architect in all but the concrete-shell structures of Candela. The ancient esthetic principles that had clearly defined the realm of the designer from that of the constructor (until the new creed of Functionalism demolished them) are reasserted. Murals, mosaics, tiles, free-standing sculptures—but, even more, the specifically architectural play with massing, reflections, textures, and perforations—hide the mere building structure in an almost baroque restatement of the "Gesamtkunstwerk." The results are sometimes shoddy, strident, and (as Hitchcock points out) frequently of such poor execution that one dreads the impact of time, and the all-too-soon transformation of new architecture into old slums. But it is the great merit of the volume that it directs the interested reader toward these specific points of observation.

The only serious quarrel with the book lies in the lack of historical context. In contrast to the recently published *Italy Builds,* by G. E. Kidder Smith, the reference to South American Colonial building is perfunctory and incomplete; and it is a complete

(Continued on page 188)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reviews

(Continued from page 184)

puzzle to this reviewer how so learned a critic as Hitchcock could omit any written or pictorial reference to the Colonial Town Plans that have given to South American towns their specific character. Without this context, the modern structures float in an environmental vacuum that becomes apparent in the giraffe-like structure, "Edificio Polar," in Caracas; in Reidy's apartment block, "Pedregulho," Rio de Janeiro, balancing precariously and unconvincingly on a steep slope; and particularly in the frightening mass of high-rise apartment blocks in the "Cerro Piloto" housing development in Caracas. There seems to be no relation whatsoever between the buildings and the earth that carries the structures. This is particularly surprising and jarring to the eye, because in their individual villas or small houses, the South Americans have achieved an integration of site and structure—without relinquishing modern design—that is rarely met in North America or Europe. Even if one rejects Niemeyer's own house, crouching like a mushroom in the fold of the towering mountain, as somewhat overdramatic, there remain such impressive and satisfying examples, as Max Cetto's house in the Pedregal outside Mexico City, with its fine contrast between native rock and concrete; or Osvaldo Bratke's long-stretched house in Sãn Paulo, Brazil, with a superb modulation of receding and advancing planes.

It is bewildering and almost upsetting that the two most inadequate examples of modern architecture in Hitchcock's book are by non-native firms. One is the American Embassy in Havana by Harrison & Abramovitz. In its heavy-handed, dull modular façade it seems a direct offspring of the unfortunate design trend now current in West Germany; and one wonders what happened to a distinguished firm of architects who once were leaders in new design.

(Continued on page 192)

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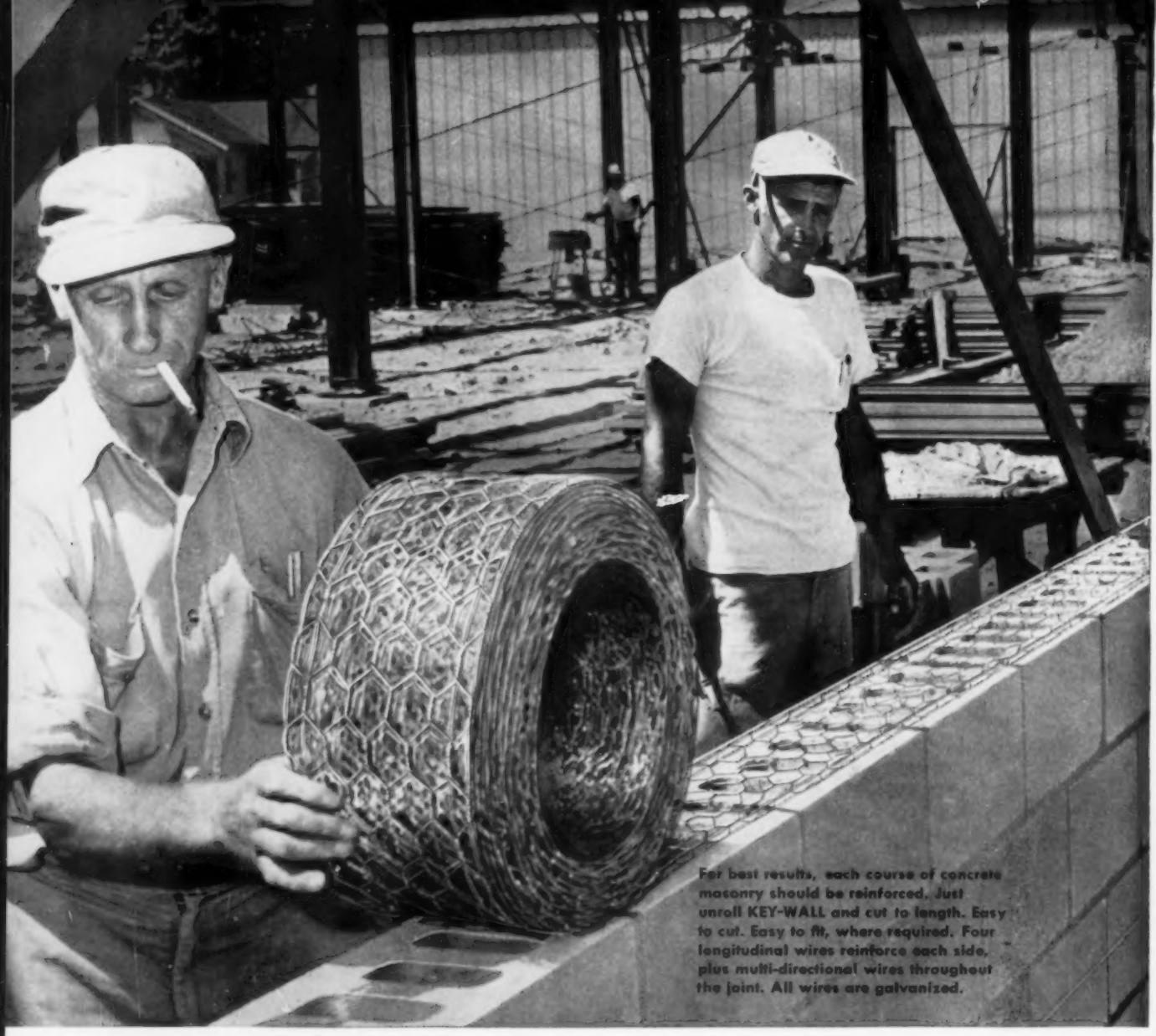

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- *You save on handling and storage (it's galvanized).*
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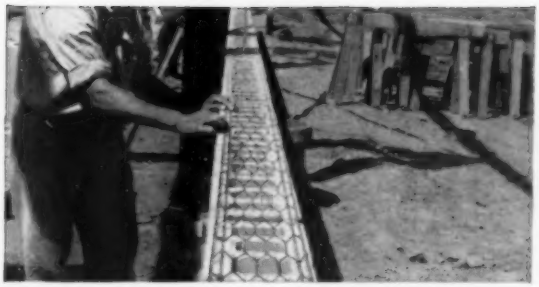

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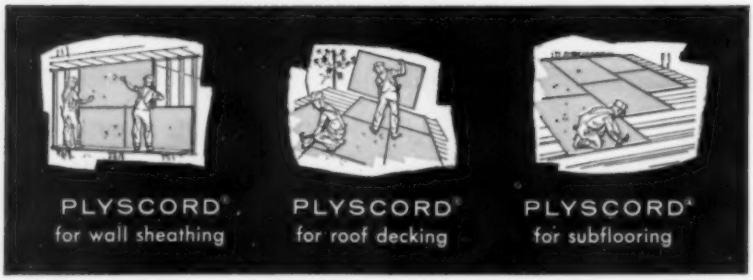


reviews

(Continued from page 188)

The other is Le Corbusier's house for Dr. Curuchet in La Plate. This gawky assembly of *brise-soleils*, balancing on stork legs around a wallless stage door is no credit to one of the geniuses of this century and should be mercifully forgotten. Whatever made Le Corbusier issue this paper edition of the Villa Savoie, it cannot be important enough to justify the renewed publication of this building.

But, as was said in the beginning, the laboratory is here and it is of immense importance to study its experiments. The Museum of Modern Art and Henry-Russell Hitchcock have rendered a great service to all of us with this publication and the accompanying exhibition.

SIBYL MOHOLY-NAGY

simple, practical

Pictorial Perspective. *Gwen White. William Morrow & Co., Inc., 425 Fourth Ave., New York 16, New York, 1955. 77 pp., illus., $3*

A surprisingly simple, practical method of applying proper perspective principles in sketches and pictures is here simply demonstrated and developed.

Each of the 32 pictures of the book demonstrates the solution of a different perspective problem. The construction lines are printed on the reverse side of the finished picture; these guide lines are readily visible when the picture is held up to the light.

The architect and delineator will find this book a great help when seeking the solution of perplexing perspective problems. The illustrations are so well done that only short descriptive bits of text are necessary.

The seemingly elementary nature of the pictures and text should not deceive the reader into underrating the value of this publication.

LAWRENCE E. MAWN

art everywhere

Primitive Art. *Franz Boas. Dover Publications, Inc., 920 Broadway, New York 10, N. Y., 1955. 378 pp., illus., $1.95 paperbound*

This is a paper-backed republication of a 1927 book. It furnishes extremely valuable background information that will be helpful to a designer in any art field.

The author skilfully establishes the scientific (ethnographical) basis for art forms in general: "the desire for artistic expression is universal"; "the fundamental sameness of mental processes in all races and in all cultural forms of the present day"; "the enjoyment of beauty (in all races) is quite the same as among ourselves."

The text provides a detailed analysis of art forms and motifs that serves to prove that certain properties and principles are common to all historic and current cultures. These properties and principles are fundamentally applicable to modern art; and especially to contemporary architecture as the movement toward its spiritual enrichment develops. The book positively merits more attention than it will probably receive.

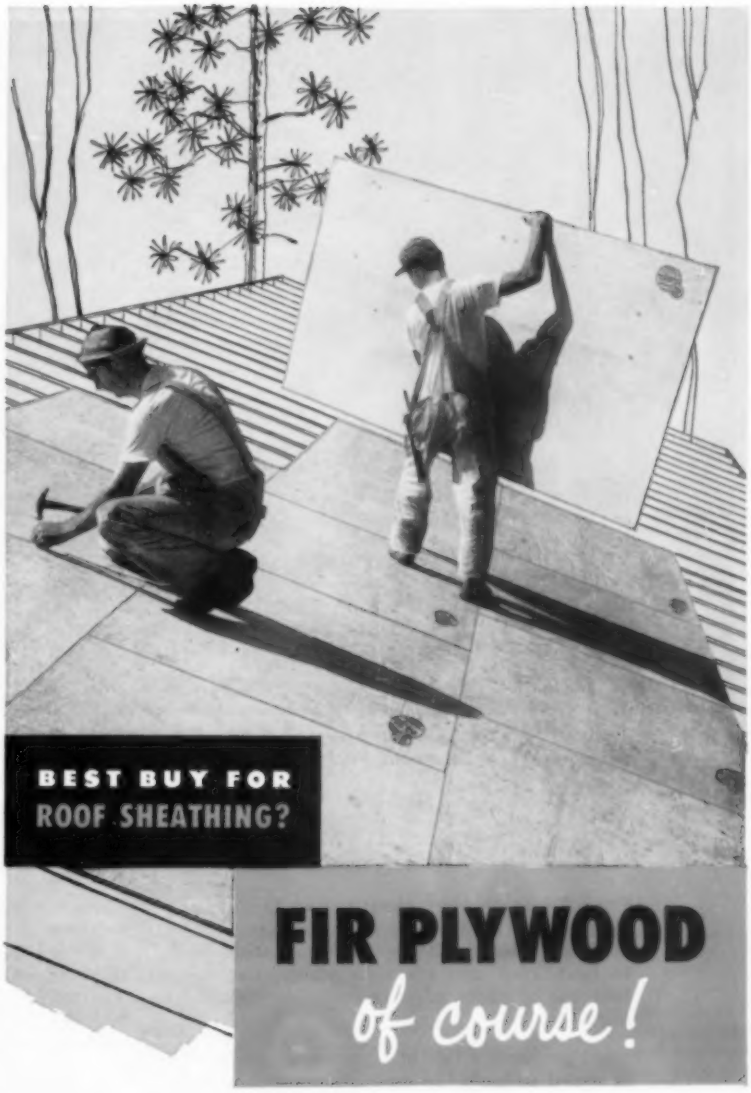
LAWRENCE E. MAWN

how to use color

New Horizons in Color. *Faber Birren. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y., 1955. 200 pp., illus., $10*

In the preface to his latest book (he has written fourteen), Birren states that he "has tried to make this book both useful and provocative." That he has successfully accomplished his aim on both points is evident after one has read the book, analyzed it, and digested its contents. For this is a well-conceived book, so comprehensive in its scope that it will as-

(Continued on page 196)



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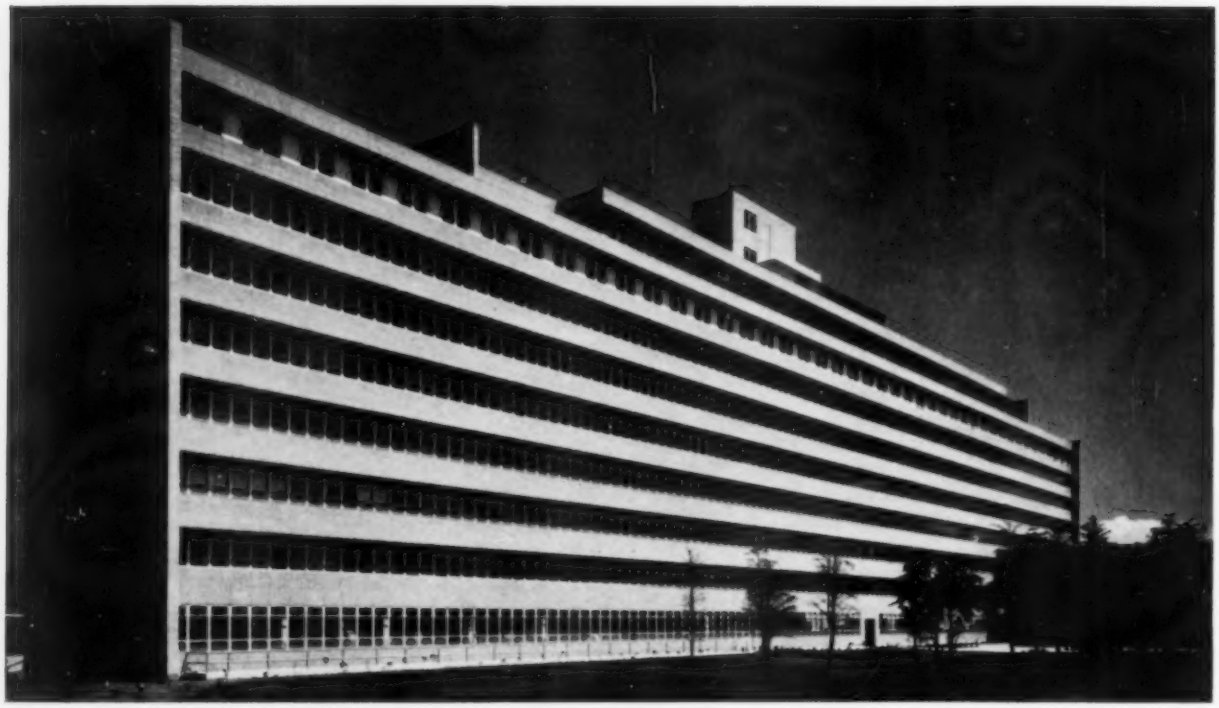

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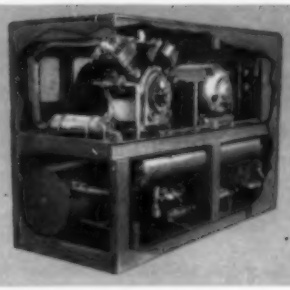

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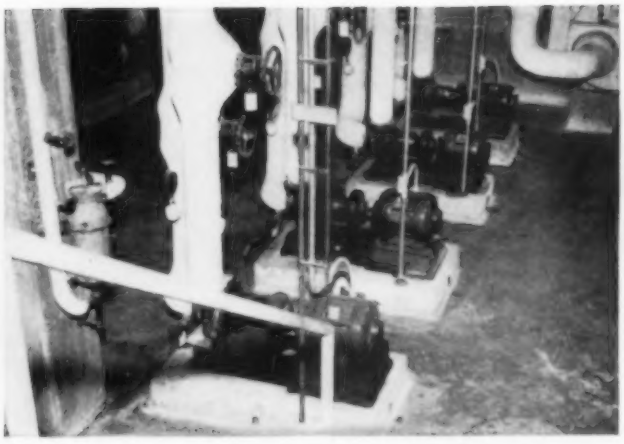

- **Apartment Building, Chicago, Illinois** *(upper left). Quiet B&G Universal Pumps are used to boost city water pressure.*
- **Illinois Institute of Technology faculty apartments, Chicago** *(lower left). Equipped with B&G Universal Pumps and Heat Exchangers.* **Architects:** *Mies van der Rohe, Pace Associates, Associated, Chicago.* **Heating Contractor:** *Wm. A. Pope Co., Chicago.*
- **Combination heating-cooling system** *(above). B&G Universal Pumps circulate heated and cooled water through the same piping system.*

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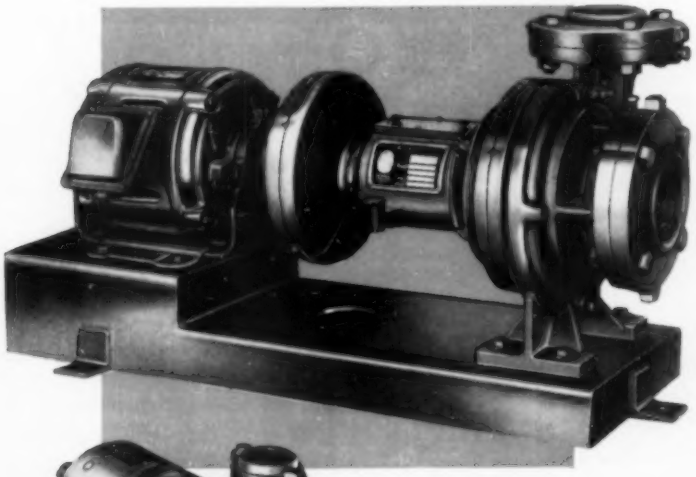

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reviews

(Continued from page 193)

suredly provide new horizons for anyone who has to deal with color; and it is particularly opportune, in view of the ever-increasing volume of building all over the country.

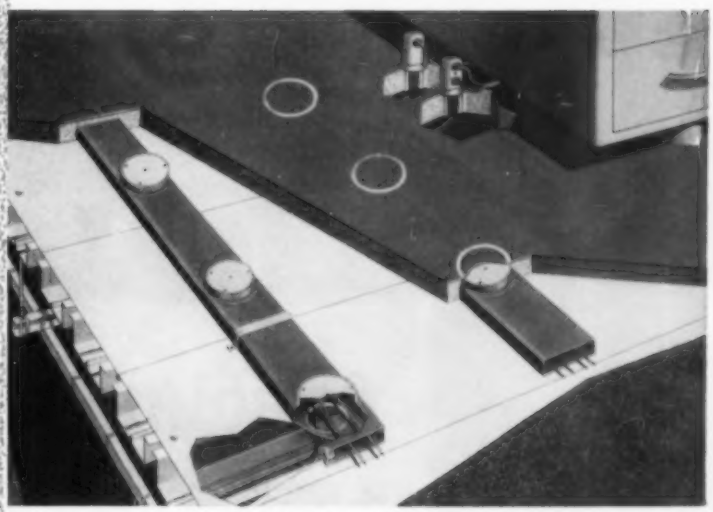
Realizing that a knowledge of the theory of color is necessary before putting it to use, Birren treats upon all the accepted systems of color and color harmony. With the knowledge of the expert, he explains the systems, as well as the dynamics of seeing and the problems of illumination, so that anyone attempting to use color will at once have an understanding of its multiple aspects—functional, physical, esthetic, and psychological. The author takes the stand, and there are probably very few who would disagree with him, that much more than enthusiasm and a desire for color are needed if color is to be put to work to the best advantage. There are far too many instances around us today of the improper—one might readily say unintelligent—use of color. The old ideas of color selection, based on "good taste" and mere personal feeling, have been superseded by an ever-increasing knowledge of the ways color can aid human efficiency and contribute to human welfare.

In his opening chapter, the author takes up the fundamentals of functional color, or color conditioning as it is most generally called. He tells, briefly of the history of color in decoration, the early investigations in putting color to work, and the scientific objectives involved. Birren engaged in the initial research and pioneered in the developments that are now so widely accepted, especially in institutional planning.

In his chapters on industrial plants and office buildings, Birren describes how the proper use of color can achieve such objectives as improved production and workmanship, less eyestrain and fatigue, reduced accident hazards, better morale, lower rate of absenteeism, better public and industrial relations, and higher

(Continued on page 200)

A National Electric header duct installation



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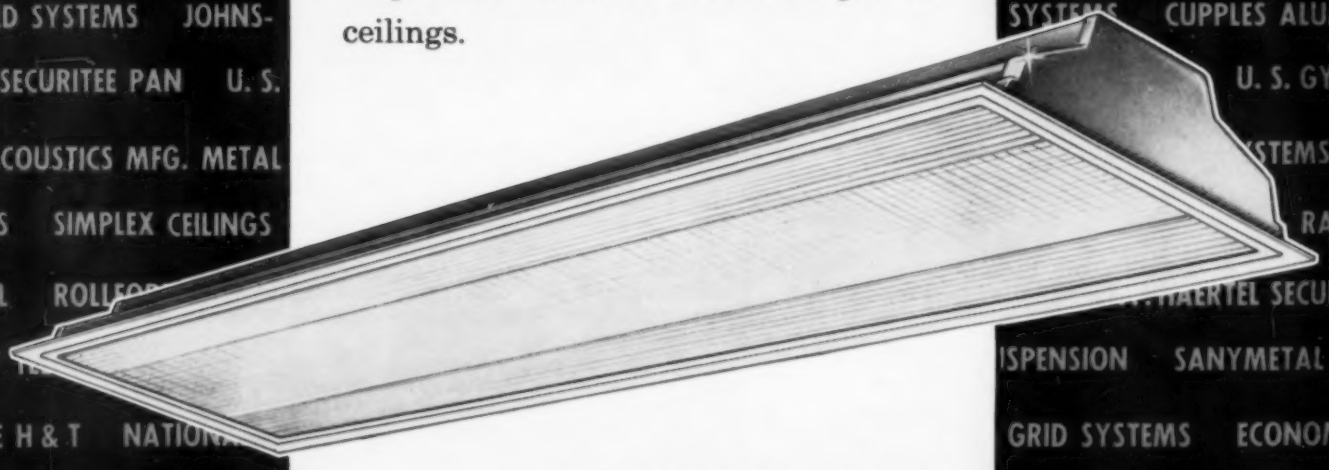

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reviews

(Continued from page 196)

standards of plant housekeeping and equipment maintenance. His advice is eminently sound and easy to apply. While he uses general terms for the color designations for specific purposes, the reader will derive much benefit from reference to the special chart of color chips to see what colors, based on research, have been most successfully used to produce the desired results.

Since color has such a vital bearing on health and human welfare, the author devotes one section of his book to the place of color in schools and hospitals. For planners of such institutions this is a most valuable chapter. The principles involved are clearly set forth and the suggestions offered are at once logical and practical. However, he wisely counsels that color for the sake of color is hardly enough to answer the needs of hospitals and that the choice should be founded on reason and function.

Of equal importance, too, is the correct use of color in stores, hotels, and restaurants, as the author so pointedly shows in another worthwhile chapter. Here the problem is more one of public appeal than of functionalism. It is an established fact that colors in a store induce sales—thereby increasing profits—and colors in a restaurant are known to create appetite appeal and make food more tempting. As in all the other sections in which he deals with putting color to work, Birren suggests what colors are best to use for the objectives in mind. Certainly, no fault can be found with his viewpoints here.

Among the other chapters—and there are pertinent ones on the use of color for building exteriors, modern home interiors and traditional home interiors—one of the most rewarding is that dealing with the story of color in architecture. Not too much has been published about the history of color in architecture,

(Continued on page 225)

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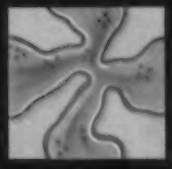

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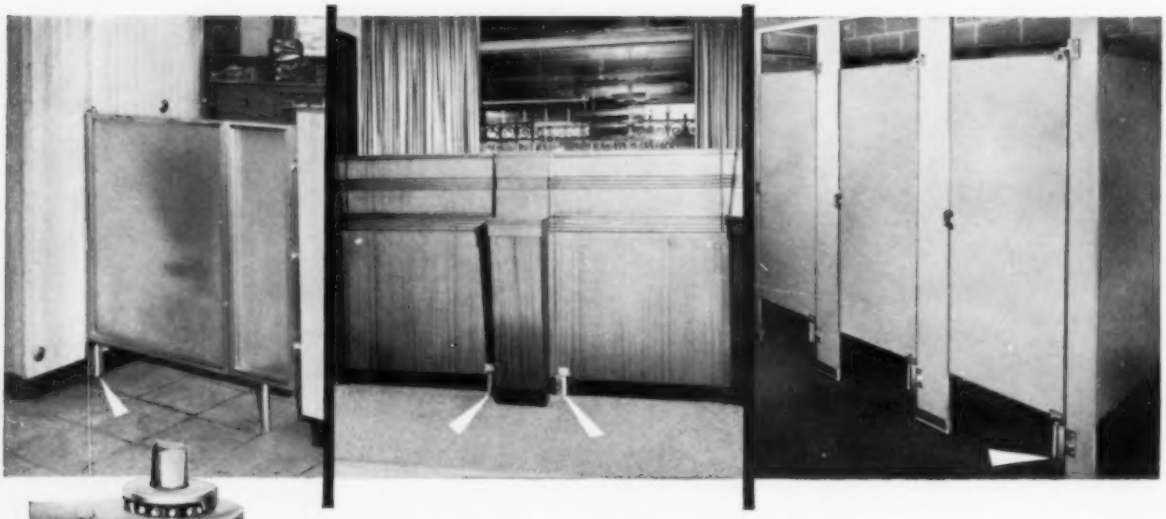

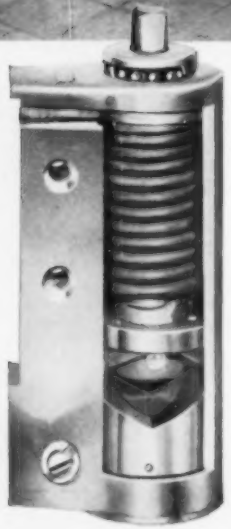

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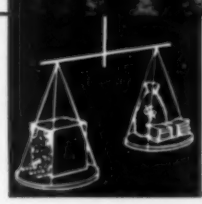

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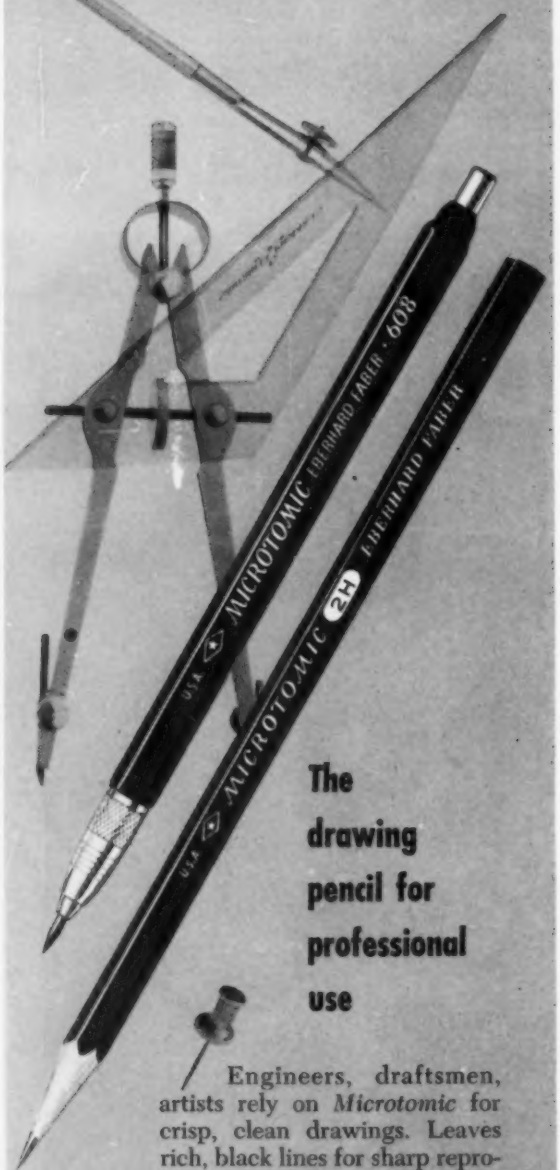

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reviews

(Continued from page 200)

so this entertaining and enlightening section has a logical place in a book that is designed to open new horizons in color. And since the proper use of color depends so much on light, the author explains the nature of light as well as of color visions. Here the technical aspects are concisely and clearly explained, to enable one to understand the relationship.

To complement the text, the author has used over 150 superb illustrations, some of them in color, and two pages of color chips. Among the most useful features of this book, which assuredly will be widely acclaimed and will make color better understood in its application, are the extensive bibliography and the appendix, which contains a valuable list of standards and guides in the use of color. FRANK A. WRENSCH

housing abroad

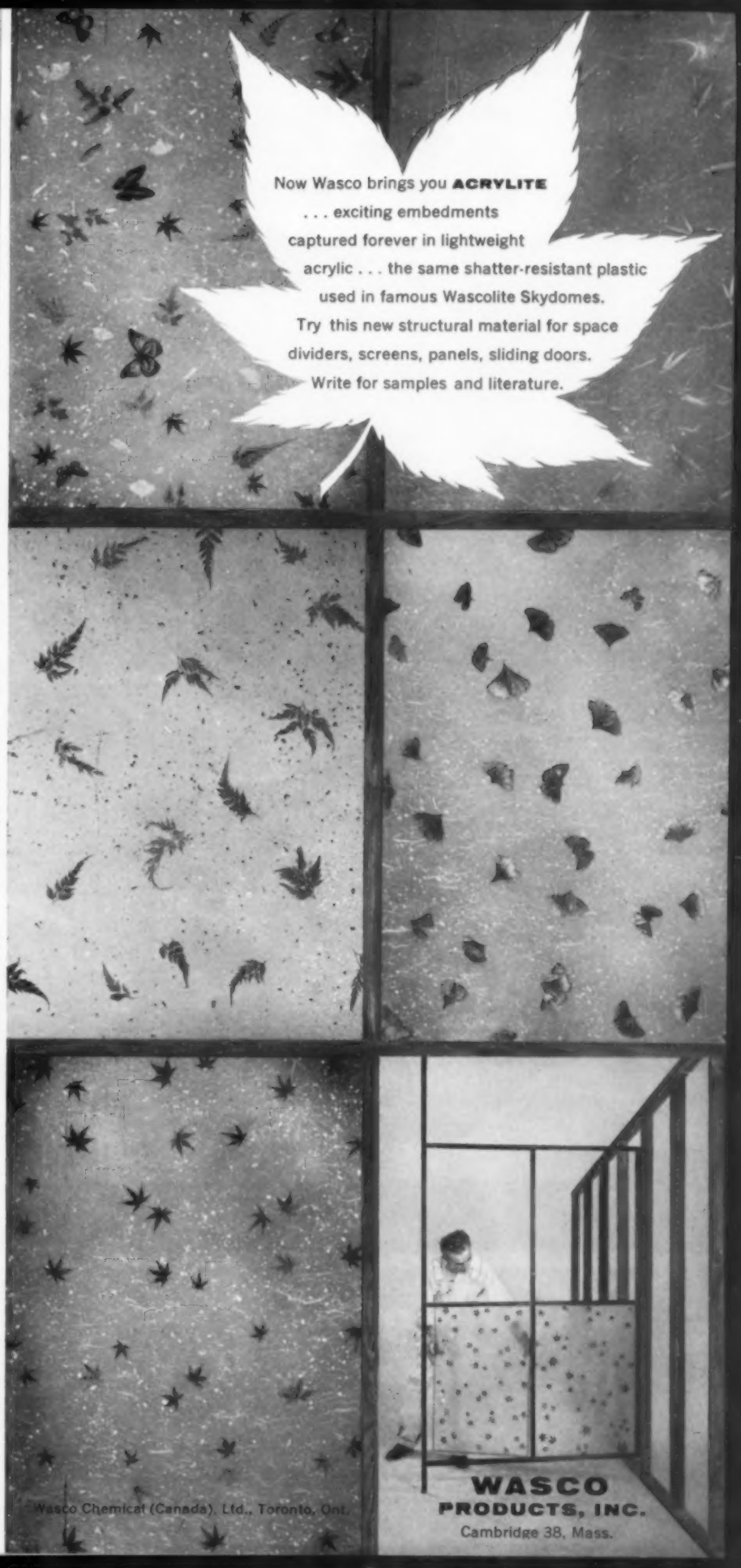
Habitation 1954-1955. *Documentation of IVth Congress of Union Internationale des Architects. Edited by Bouwcentrum, Rotterdam, The Netherlands, 1955. 212 pp. illus., $7.80*

This work, Part I of a series, is published for the UIA and is a compilation of certain proceedings of its fourth Congress and of illustrative housing developments in seven nations. Part II, to be published, will consist of additional examples of 10 more nations. It is also planned to present elaborations of these documents. The Netherlands will contribute the first example.

The Congress, at the Hague, was concerned with "program, design, production" of the past decade's more or less standard people's housing.

The volume at hand, in addition to its preface, gives plans, photographs and analyses of housing in Algeria, West Germany, Argentina, Brazil, Norway, The Netherlands, and Poland.

(Continued on page 208)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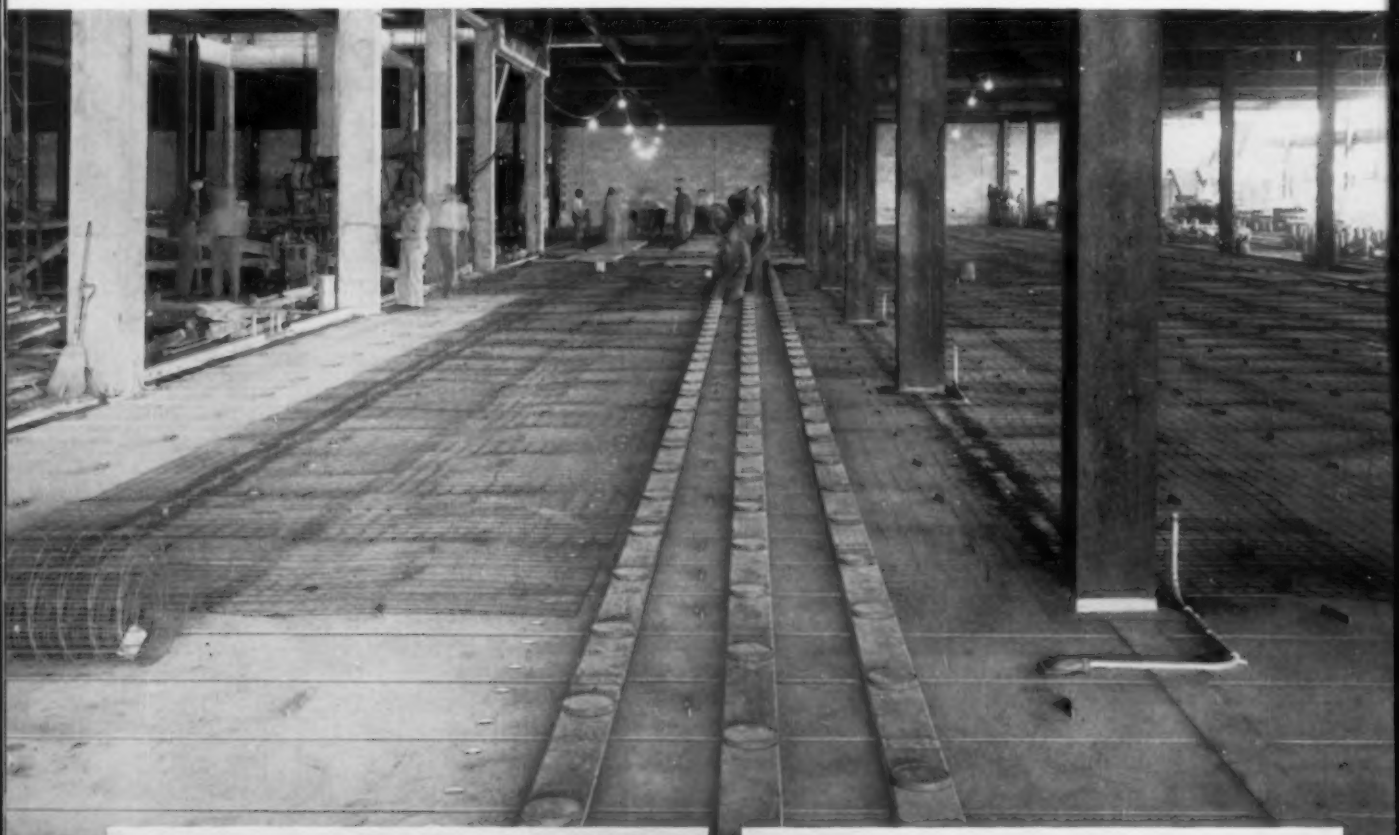

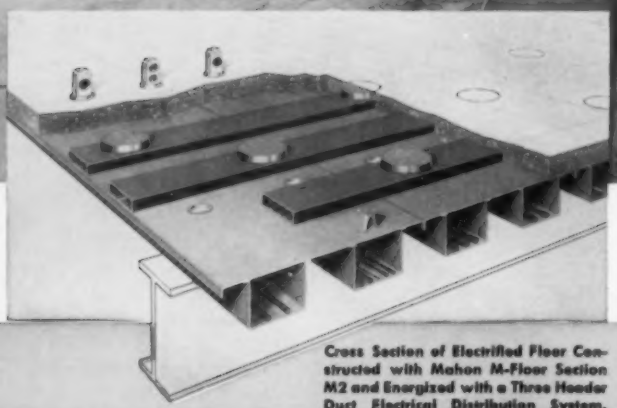

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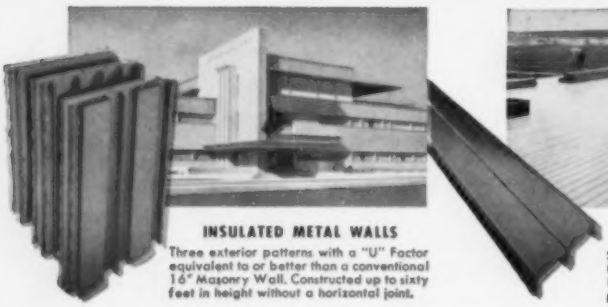

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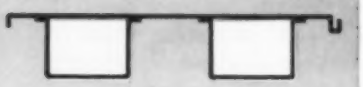

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reviews

(Continued from page 205)

The preface, in French, English, German, and Spanish, explains the aims of the UIA Fourth Congress and organizes its research under such headings as "analysis or requirements," "designs," "equipment," and "production."

The body of the book shows small houses and apartment buildings with information, rather stiffly formalized, on locality, architect, type of construction, areas, costs and (usually) a reference to previous publication. Its value to architects of the U.S.A. lies more in the visual presentation (although photographs and plans are tiny) than in the accompanying text. The English wording is indifferently rendered from the French, and typographic errors are frequent enough to puzzle the reader. Costs are given only from the country of origin, measurements are in meters, and many of the technical terms are baffling until one turns back to the French version.

The illustrations, however, are valuable, as refreshing eye-openers to the many kinds of shelter being provided for low-income families by other nations. ELISABETH COIT

historic homes

English Country Houses — Early Georgian. *Christopher Hussey. Country Lift Ltd., 2-10 Tavistock St., Covent Garden, London W. C. 2, England. 6 guineas. (Published in U. S. by Essential Books Inc., 160-00 Pollitt Drive, Fair Lawn, N. J.) 1955. 250 pp., illus., $20.20*

There is something about an introduction to a book which is like the third dry martini at a cocktail party. Gin leads one to say things one shouldn't, and an introduction does the same for an author, usually in the form of dangerous generalizations. Even so distinguished a writer as Christopher Hussey succumbs to the hazard. Commenting on Eng-

(Continued on page 210)

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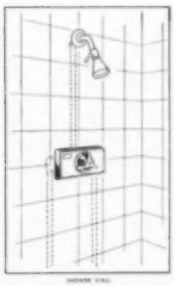

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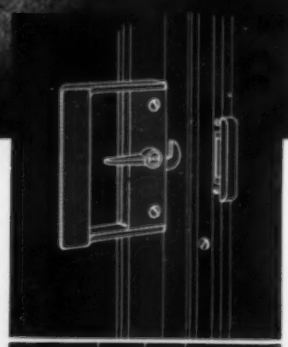

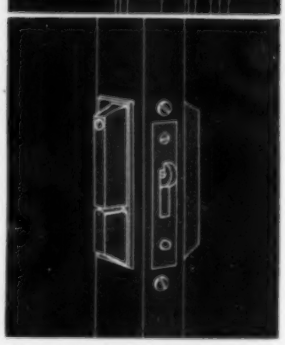

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reviews

(Continued from page 208)

lish culture at the end of the 18th Century, he writes: "And by that century's close the native genius had largely established its independence of the classical: as 'Romanticism' in literature, 'the Picturesque' in the visual arts, and the empirical approach to science and philosophy." He sees this reflected in the country houses of the period! This is simply not so, especially the Picturesque in the arts. It may have existed in landscape architecture but hardly in painting and architecture. Is Benjamin West picturesque? And the architects, Sir John Soane, Henry Holland and John Nash, all three active around 1800?

Hussey is also the victim—there seems to be no liquid refreshment for comparison here unless it be Rhine wine — of *Kunstwissenschaft*. What is actually the superb classical stream of English 18th Century architecture is broken up, at times, into rivulets, one of which has the name of "picturesque empiricism." Labeling is part of the art of historian's trade to be indulged in with care and always with clear definitions. It is the *kunstwissenschaftliche* aspect which sets the volume apart from the original series on English country houses, edited by the late H. Avray Tipping. Where Tipping gave more attention to the owners and visitors of the country houses, Christopher Hussey emphasizes the arts and their mutations. Of course, the latter should be explored in some detail, but not dwelt on at the expense of the story of the people who lived in the houses and of the sources of their incomes. The owners, often historical figures, are more interesting. For an American audience, and we suspect for the English public as well, a wordly background would make for greater appreciation. And while indulging in the picayune, it might be the place to question the description of an ornament in the Grand Hall of Holkham. On page

(Continued on page 215)

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Proposed community central school of "cluster" design, serving 1300 pupils in all grades. Offers advantages of centralization, plus economy of construction, operation and administration. Each age group, from kindergarten up, keeps the identity of its own building in an attractive, efficient campus. Designed by Perkins & Will, Chicago, Ill., and White Plains, N. Y.

Fiberglas Design Portfolio

MODERN SCHOOLS

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. . . and walls: The curtain wall construction, so popular in today's schools and other buildings, demands an extra-efficient thermal insulation to provide adequate protection against heat and cold. Makers of aluminum, steel and porcelain-faced curtain wall panels choose Fiberglas PF Insulation as the core because it provides such a high degree of heat stopping efficiency in these thin wall sections. Fiberglas is easy and economical to fabricate—makes low-cost construction possible. Light in weight.

To banish noise . . . For quieting individual classrooms, corridors, cafeterias, or other school areas, Fiberglas Ceiling Board offers lowest cost suspended non-combustible acoustical ceiling. Large boards suspended on a metal T-grid system give an attractive acoustical ceiling installed for about the same cost as conventional *non*-acoustical ceiling. It's non-combustible. Gives bonus of added heat control. Wide selection of patterns. *See Sweet's Catalogue or write for AC6.A1.*

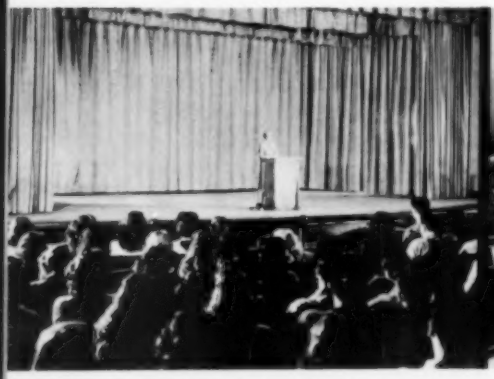
3 jobs at 1 low cost! For ceiling areas, Fiberglas Acoustical Form Board with gypsum deck construction offers extra advantages . . . and extra economies. It combines 3 extra-value features: (1) Permanent, dimensionally stable form board; (2) fire-safe acoustical ceiling (cuts noise and clatter up to 75%); and (3) highly efficient insulation for maximum year-round comfort. Low cost covers everything—form board, acoustical ceiling, and insulation. *See Sweet's Catalogue or write for RW6.A4.*

Heating and cooling: Fiberglas Duct Insulation cuts fuel costs, adds to comfort, and eliminates condensation problems when properly used on warm air and cool air ducts. Six different kinds—rigid or flexible, faced, sprayed, or uncoated. *See Sweet's Catalogue. Or write for IN6.A1.* For warm-air furnaces and air conditioning systems, Fiberglas Dust-Stop* Air Filters cut heating and cooling costs. They let warm air or cool air through, but keep dust, dirt and pollens out. *See Sweet's Catalogue or write for AR6.A1.*

For extra quiet . . . The attractive Fiberglas Acoustical ceiling in the schoolroom above comes in a complete range of textures, patterns and colors, and can be applied mechanically or with adhesive. It's long-lived—offers superior schoolroom quieting. Fire-safe and flame resistant—acceptable under codes requiring maximum degree of life safety from fire. Provides highest protection for school occupants. It's easily installed, easily cleaned, and even provides added thermal insulation. *See Sweet's Catalogue or write for ACCA.1.*

More comfortable furnishings: Special posture-fitting chairs—like the one above—add new comfort to new schoolrooms. Made of Fiberglas Reinforced Plastic, they are scientifically molded to fit youthful postures. Extra light, extra strong, and easy to clean. They come in a range of color tones to add distinctive brightness to the classroom. And they're tough enough to stand juvenile abuse of every variety without chipping, splintering, or scratching. *Write for descriptive literature.*

Draperies: The needs of school rooms are brightly handled by use of practical, beautiful Fiberglas fabrics. Fiberglas draperies are completely fire-safe. They save money, too, because they never need fireproofing. Sun-rot proof, they don't need lining—let natural light in for comfortable desk work while harsh sun rays are blocked. Because fibers of glass can't absorb dirt, Fiberglas fabrics wash quickly and easily with just soap and water. *Write for descriptive literature.*



Fire-safe stage curtains: For school use, stage curtains must pass the strictest fire regulations . . . and Fiberglas coated fabric curtains are permanently fire-safe. They never need flame-proofing! What's more, Fiberglas curtains are comparable in their low cost to other fabrics used for this purpose. They're hard to soil—easy to wash! In addition, they provide long, maintenance-free service, thus making their cost per year of use exceptionally low. *Write for further information.*

Sidelights, skylights, and screening: The colorful, translucent Fiberglas Reinforced Paneling—used as roof and wind screen—cuts maintenance costs because it's breakproof and shatterproof. Another Fiberglas product—Fiberglas Screening—is ideal for school use because it's the strongest screening made. It withstands all kinds of abuse. Won't corrode, stain, shrink or stretch. And it never needs painting! Can be left up all year round. *Write for PR6.A2.*

Life mask of Jefferson from New York State Historical Association, Cooperstown, N.Y.

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reviews

(Continued from page 210)

140 the author refers to "a wave guilloche" when he clearly means a Vitruvian or wave scroll.

What a panoply Hussey unfolds! Houghton Hall, Moor Park, Mereworth Castle, Holkham, and many others—jewels all, set in the green velvet of the English countryside. Tipping spread them before us 30 years ago, but his volumes have been long out of print and can only be obtained at fantastic prices. It is wonderful to see our old friends again. And only Christopher Hussey, editor of *Country Life* and author of that very important work, *The Picturesque*, could have recast the *English Country House* series in its new form, of which this volume is the first to appear.

To any one who loves our domestic architecture, the series is essential to offer perspective and to help understand what England has given us. It is as lavishly illustrated as its predecessor, with the famous *Country Life* photographs and, at the price, a bargain. It is very good news that the Oxford University Press, under the apt imprint of Essential Books, has launched the series in this country.

HENRY HOPE REED

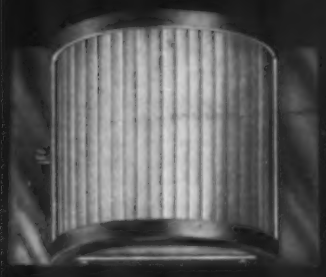
testing space frame

Unistrut Space-Frame System. *Report on Engineering Research Institute Project 1975. Paul H. Coy and Leo M. Legatski. University of Michigan Press, Ann Arbor, Mich., 1955. 75 pp. text, 105 pp. diagrams and illustrations, $7.50*

This copiously illustrated report will interest architects and engineers concerned with the development of new structural systems. It describes the testing of a space-frame roof using stock Unistrut members with special connectors. The program was sponsored by Charles W. Attwood, president of Unistrut Corporation, Wayne, Michigan, and was carried

(Continued on page 218)

design by mc Philben



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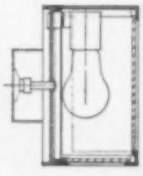

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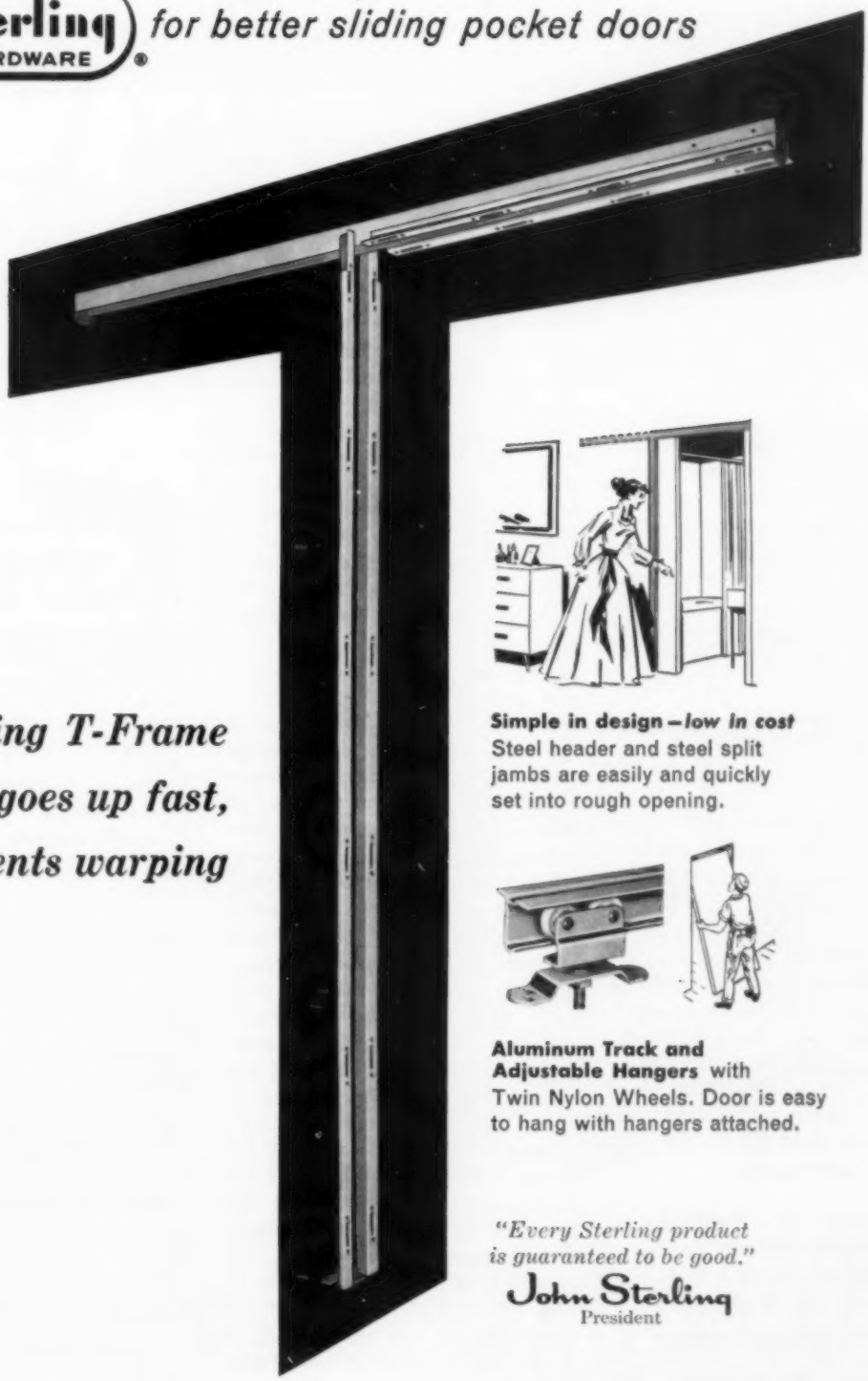

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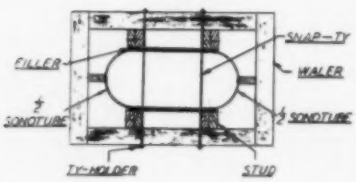

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reviews

(Continued from page 215)

out from 1951 to 1954 by the College of Architecture and Design of the University of Michigan in collaboration with the College of Engineering and the Engineering Research Institute.

The basic unit of their space frame is a square-based, eight-edged pyramid, measuring 4′-1″ along each edge between the center points of joints. The complete frame consists of a square grid forming an upper plane and another square grid forming a parallel lower plane, joined by diagonals. The grid crossings in one plane are above (or below) the centers of the squares in the other plane. Each joint in each plane is the meeting point of four orthogonal members in one plane and of four diagonals. The depth between upper and lower planes is 2′-10⅝″.

Five different arrangements of roof area and column spacing were tested for gravity loads and one of these for lateral loads. The experiments showed that the space frame would carry a vertical live load of 60 psf without failure, for a column spacing of 28′-7″ and a roof overhang on all sides of 12′-3″. A deflection of 1/370 of the span was reached with 30 psf live load. (The dead load of framework, ⅜″ asbestos board, and 3-ply roofing was about 12 psf.)

By using an improved connector and doubling up the critical diagonal struts, a vertical load of 60 psf was carried with a column spacing of 40′-10″ and a roof overhang on all sides of 14′-3½″. A load of 30 psf caused a deflection of 1/490 of the span. Lateral loads tested the columns rather than the roof frame and showed that these can be built to withstand a 30-psf wind load on walls 16′-6″ high combined with a 15-psf gravity load on the roof, or an earthquake load of 1/5g (dead load only).

The authors of the report recommend that a factor of safety of 1.5 be used with these figures to calcu-

(Continued on page 220)

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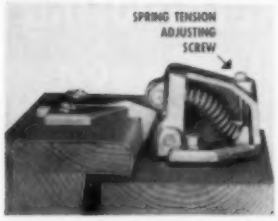

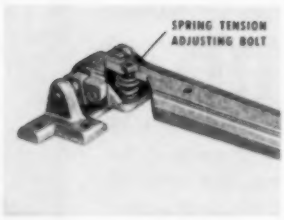

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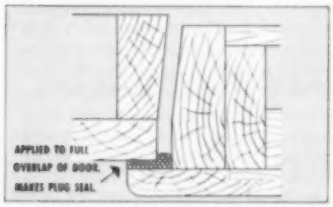

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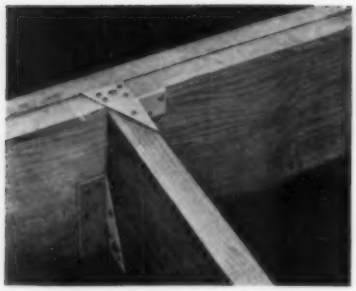

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reviews

(Continued from page 218)

late working loads. They promise further research and the preparation of computation methods which would permit the calculation of stresses using other roof and column plans.

Two buildings have been built as a result of this project: one for Unistrut Corporation, using parts of the test building; and one, as a research laboratory, for the College of Architecture and Design at the University of Michigan.

No attempt was made in the report to compare the costs of the Unistrut space frame with other types of construction with the same spans. The greatest advantage which can be seen for the space frame is the possibility of setting supports quite freely and of moving them during the life of the building. Its light weight and ease of assembly and disassembly can be of advantage for some types of buildings.

It is unfortunate in a report of this kind to find references to 1937 as an "early" date in the space-frame concept of structural design. In his thorough *History of Strength of Materials* Professor S. Timoshenko credits A. F. Möbius in 1837 with the first statement on the minimum number of members in a plane truss as 2j-3 and in a three-dimensional truss as 3j-6, where j is the number of joints. He also describes space frames built by A. Föppl in the 1890s.

Incidentally, the basic Unistrut space frame as shown in this report is deficient by one member for each pair of pyramids. However, in construction the necessary diagonal members were added in the upper plane to give extra support to the $\frac{3}{8}$" asbestos panels (which themselves might replace such members if sufficiently rigid). The report fails to mention how these diagonals were fastened and the new eight-way connector still makes no provision for them. H. SEYMOUR HOWARD, JR.
Assistant Professor of Architecture
Pratt Institute

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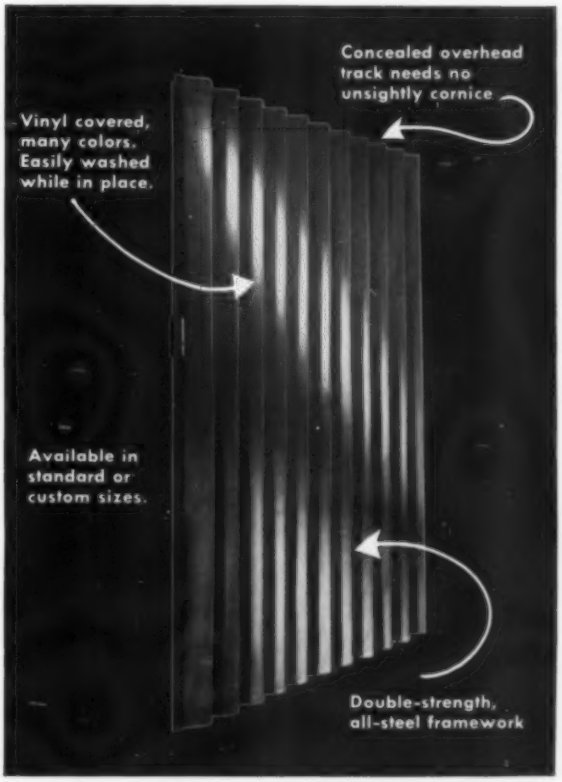
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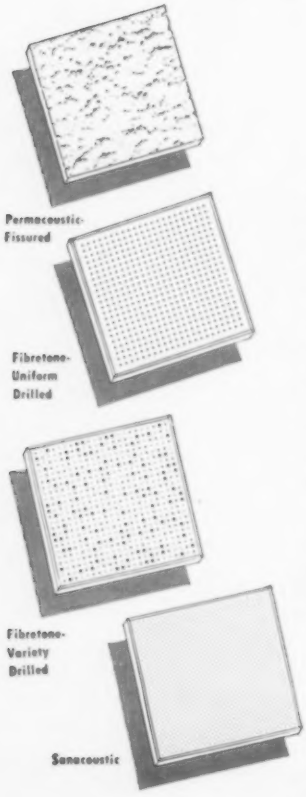

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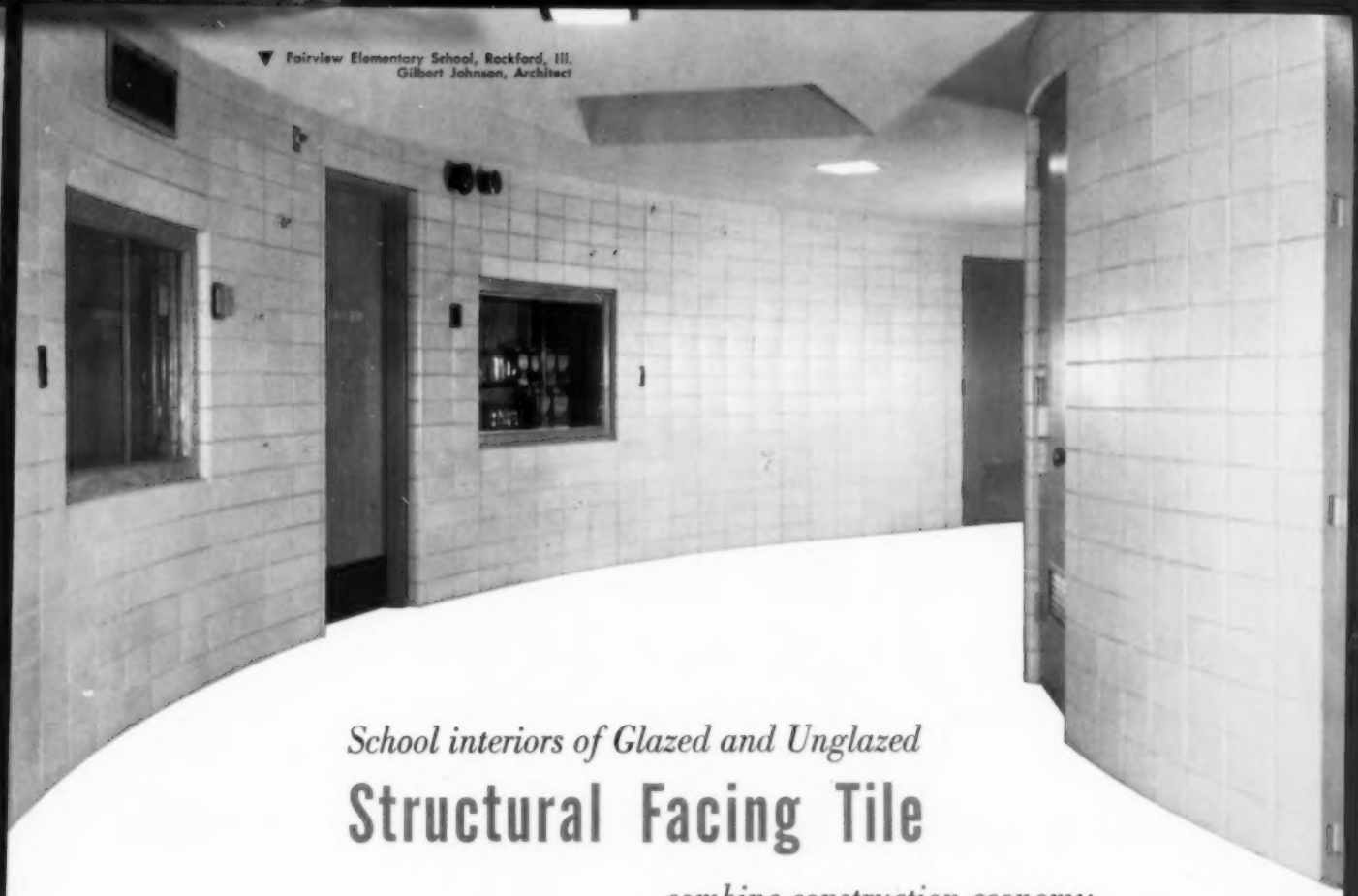

▼ Fairview Elementary School, Rockford, Ill.
Gilbert Johnson, Architect

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rugged, easily-cleaned finish

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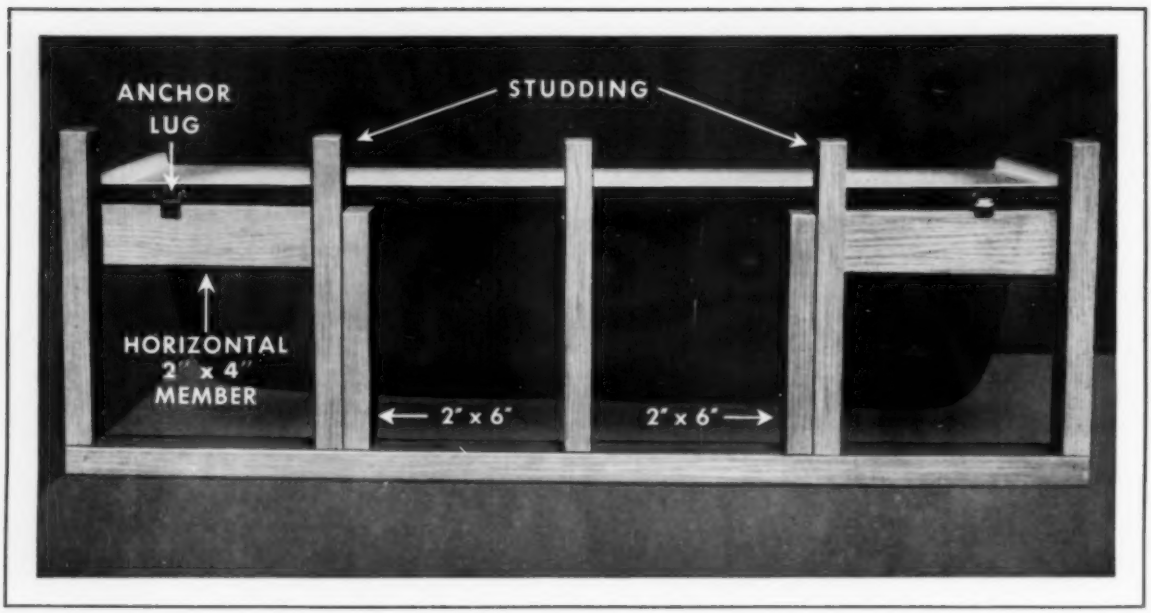

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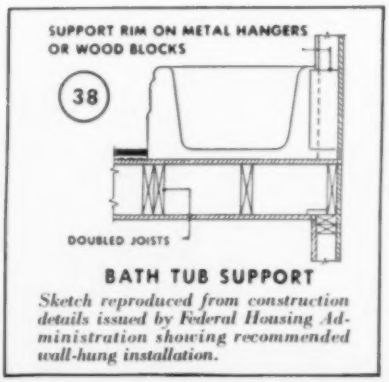

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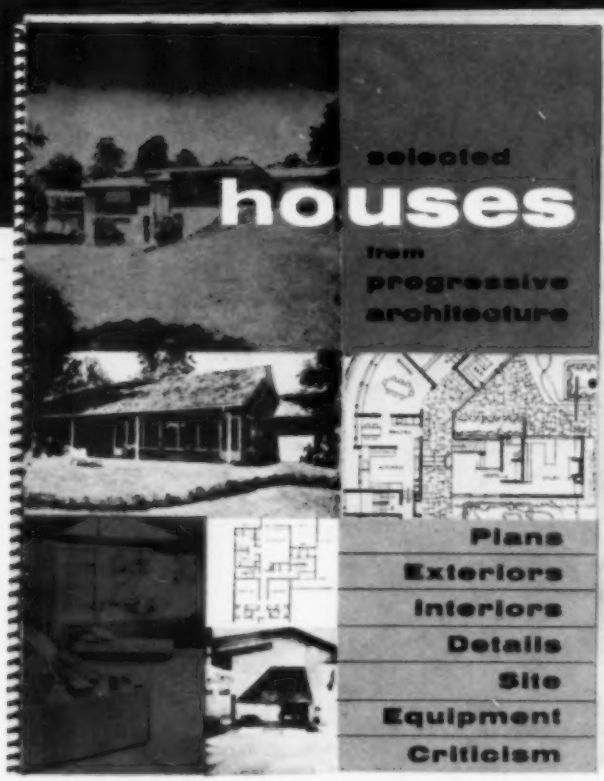

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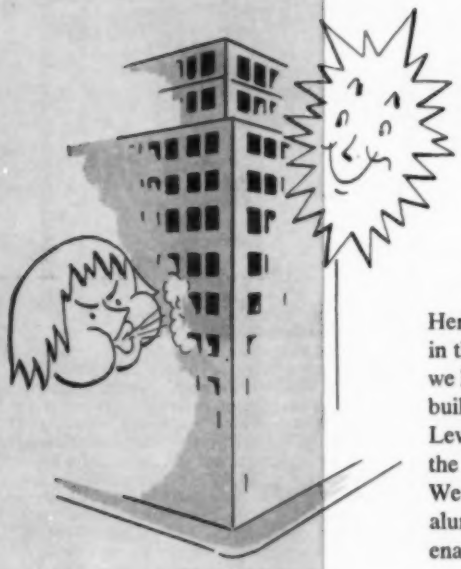

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notices

meetings

THE AMERICAN SOCIETY FOR ENGINEERING EDUCATION will hold its Annual Meeting at Iowa State College, Ames, Iowa, June 25-29.

MICHIGAN ENGINEERING SOCIETY will hold 76th Annual Convention at Pantlind Hotel, Grand Rapids, Mich., May 11-12.

NEW YORK STATE SOCIETY OF PROFESSIONAL ENGINEERS, INC., will hold 30th Engineering Industries Exposition in conjunction with annual convention at Statler Hotel, New York, N. Y., May 17-19.

summer schools, conferences

Special Summer Programs for 1956 Session at MASSACHUSETTS INSTITUTE OF TECHNOLOGY include the following: Monday, July 2, Plastics in Building; Monday, August 6, Structural Design for Dynamic Loads; Monday, August 13, The Artist, Materials and Technology; Monday, August 20, City and Regional Planning. For further information on 1956 Summer Session activities write: Prof. Ernest H. Huntress, MIT, Cambridge 39, Mass.

VIRGINIA POLYTECHNIC INSTITUTE, Blacksburg, Va., will hold Seventh Annual Engineering Conference, April 26-28, 1956. Theme of the conference, which is sponsored by student Association for the Advancement of Engineering, is "Engineering, The Summation of the Sciences."

OHIO STATE UNIVERSITY College of Engineering announces its Annual Conference for Engineers, to be held at Ohio Union, Columbus, Ohio, May 4.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS will sponsor Design Engineering Conference, set for May 14-17 at Convention Hall, Philadelphia, Pa. Conference will coincide with first Design Engineering Show, same location.

(Continued on page 230)

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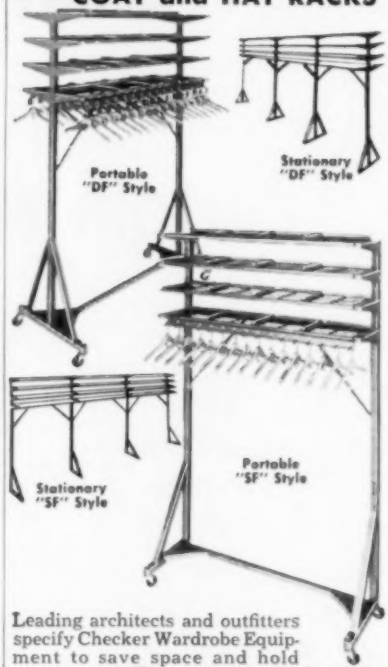

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notices

(Continued from page 228)

UNIVERSITY OF COLORADO Department of Architecture and Architectural Engineering, under auspices of the College of Education, will conduct the Fourth Annual School Plant Planning Workshop on the Boulder campus, June 18-July 20. If interested write: Prof. Thomas L. Hansen, University of Colorado, Boulder, Colo. for details.

Armour Research Foundation, ILLINOIS INSTITUTE OF TECHNOLOGY, will sponsor first annual National Industrial Research conference, to be held April 18-19 at Sherman Hotel, Chicago. For details write: Joseph J Kowal, Armour Research Foundation of Illinois Institute of Technology, 10 W. 35 St., Chicago 16, Ill.

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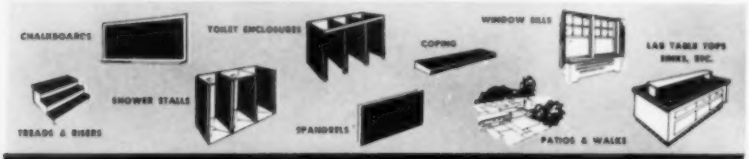

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appointments

ALBERT W. CHRIST-JANER has been appointed Director of new School of Fine and Applied Arts, PENNSYLVANIA STATE UNIVERSITY.

CLIFFORD DE BAUN, of VOORHEES, WALKER, SMITH & SMITH, Architects-Engineers, New York, has been appointed Building Program Co-ordinator for proposed expansion of FORDHAM UNIVERSITY.

PROFESSOR HARLAN MCCLURE, Head, Department of Architecture, CLEMSON COLLEGE, Clemson, S.C., recently announced names of visiting lecturers and critics for this year, as follows: PROF. ROBERT NEWMAN, MIT, lecturer in acoustics; DR. THOMAS HOWARTH, University of Manchester, England, lecturer in architectural history; ROY JONES, professor emeritus, University of Minnesota, lecturer in professional relations; R. BUCKMINSTER FULLER, critic in design; JOHN ELY BURCHARD, MIT, lecturer in architectural history; DAN KILEY, Charlotte, Vt., critic in landscape design; and PROF. H. K. MENHINICK, Georgia Tech, lecturer in town planning. Program is sponsored by newly formed CLEMSON ARCHITECTURAL FOUNDATION.

new addresses

SHORE & MOFFAT, Architects, 51 Wellington St. W., Toronto, Canada.

YAMASAKI, LEINWEBER & ASSOCIATES, Architects-Engineers, 103 W. Fifth St., Royal Oak, Mich.

CAMPBELL & WONG, Architects, 737 Beach St., San Francisco, Calif.

new trade association

AIR MOVING AND CONDITIONING ASSOCIATION, INC., was recently formed in Chicago by 46 manufacturers of air-moving and conditioning devices. Officers elected for this year are: President, R. W. NELSON of AMERICAN AIR FILTER COMPANY, INC., Louisville, Ky.; Vice-President, J. F.

(Continued on page 232)

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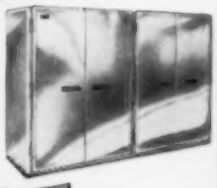

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notices

(Continued from page 230)

SNOW of DAVIDSON FAN COMPANY, Newton, Mass.; Vice-President, C. C. CHEYNEY of BUFFALO FORGE COMPANY, Buffalo, N. Y.; Secretary-Treasurer, W. H. RIETZ of ILG ELECTRIC VENTILATING COMPANY, Chicago, Ill. Association headquarters are at 2159 Guardian Building, Detroit 26, Mich., under direction of L. O. MONROE, Executive Vice-President.

meetings

AIA 1956 Regional Conference, South Atlantic District, will open in Durham, N. C., on April 12. Theme of Conference is "New Materials and Construction in Architecture."

consulting services

PITTSBURGH PLATE GLASS COMPANY recently created a Building Products Sales department to service the building industry. Department will be managed by GEORGE L. WEST. Assistant Manager is D. C. HEGNES; E. F. TONEY is Manager of Pittco sales; and E. A. LUNDBERG is Manager of architectural development and design.

NAPC technical chief

ALBERT H. MORGAN, New York engineering consultant, is new technical department chief of National Association of Plumbing Contractors. He will supervise co-ordination and expansion of Association's research activites and assist its code committee in developing model code of plumbing standards.

consulting services

UNITED STATES PLYWOOD CORPORATION announces new Engineering Sales Department, to be headed by RAYMOND C. PLATOW. Department will act as "technical task force," providing technical consulting service for industrial customers of all U. S. PLYWOOD branches.

BOLT BERANEK & NEWMAN INC., acoustical consulting firm of Cambridge, Mass., announce opening of west coast office at 435 South La Cienega Blvd., Los Angeles, Calif. DR. WILLIAM J. GALLOWAY will handle engineering activities and JACK B. C. PURCELL architectural acoustics.

KAISER ALUMINUM & CHEMICAL SALES, INC., New York, have inaugurated new program of service to architects. District Architectural Representative ERNEST J. BOLDUC, JR. will assist and advise on proper use and application of aluminum.

p/a congratulates . . .

ELSTON J. TRIBBLE and ALOYSIUS M. TULLO, newly elected Vice-Presidents, WORTHINGTON CORPORATION, New York.

JAMES R. LUCAS, recently appointed director of Sales Promotion, HERMAN MILLER FURNITURE CO., Zeeland, Mich.

JAMES M. WHALEN, Manager of convector sales, THE TRANE COMPANY, La Crosse, Wis., who has been elected President of the Convector Manufacturers' Association, Inc. for one-year term.

C. V. BLACKBURN, appointed Vice-President of sales, STRAN-STEEL CORPORATION, Detroit unit of NATIONAL STEEL CORPORATION.

L. H. HOELTER, Chicago, appointed Manager of Builder Sales Department, PERMAGLAS DIVISION, A. O. SMITH CORPORATION, Kankakee, Ill.

EARL W. PETERSON, Vice-President of IDEAL STONE CEMENT COMPANY, Omaha, Neb., recently named President of NATIONAL CONCRETE MASONRY ASSOCIATION.

JOHN W. JAMES, Vice-President of Research for MCDONNELL & MILLER, INC., Chicago, newly elected President of AMERICAN SOCIETY OF HEATING AND AIR-CONDITIONING ENGINEERS.

D. S. DEWITT, Oconto, Wis., recently re-elected to fifth term as President, MAPLE FLOORING MANUFACTUREFS ASSOCIATION.

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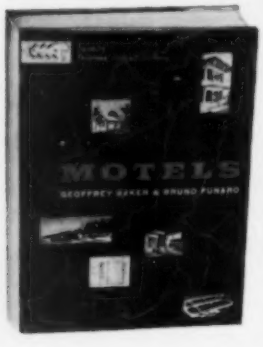

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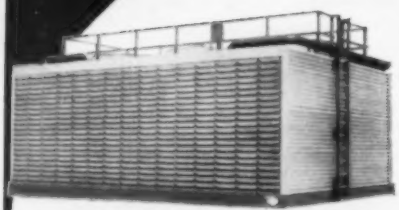

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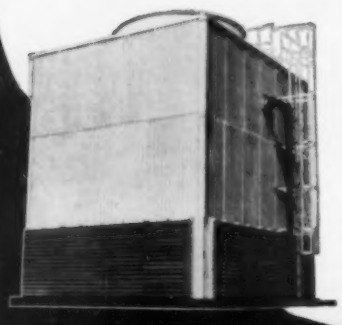

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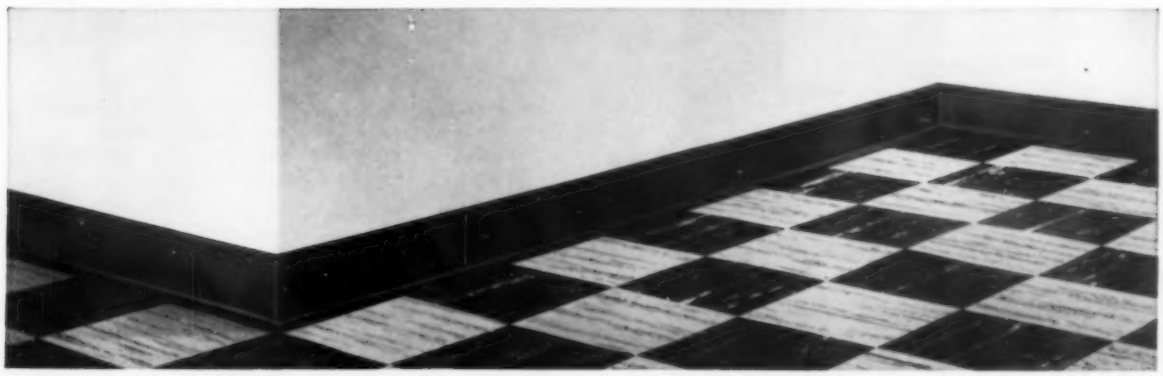

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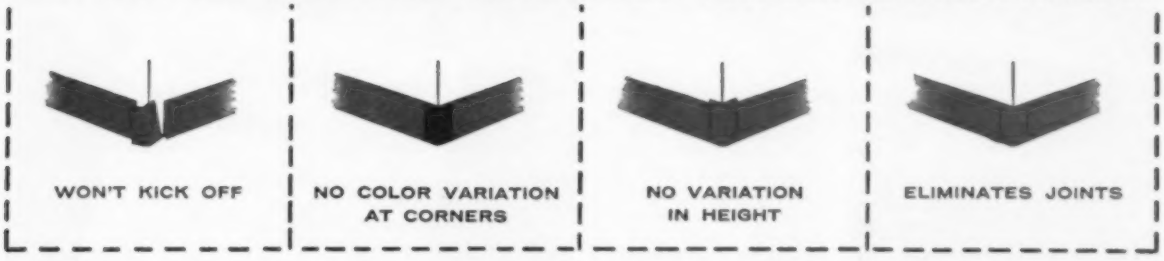

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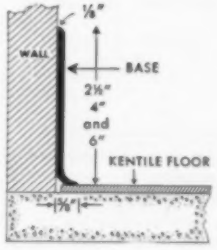

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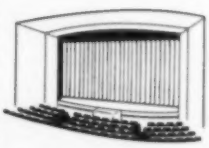

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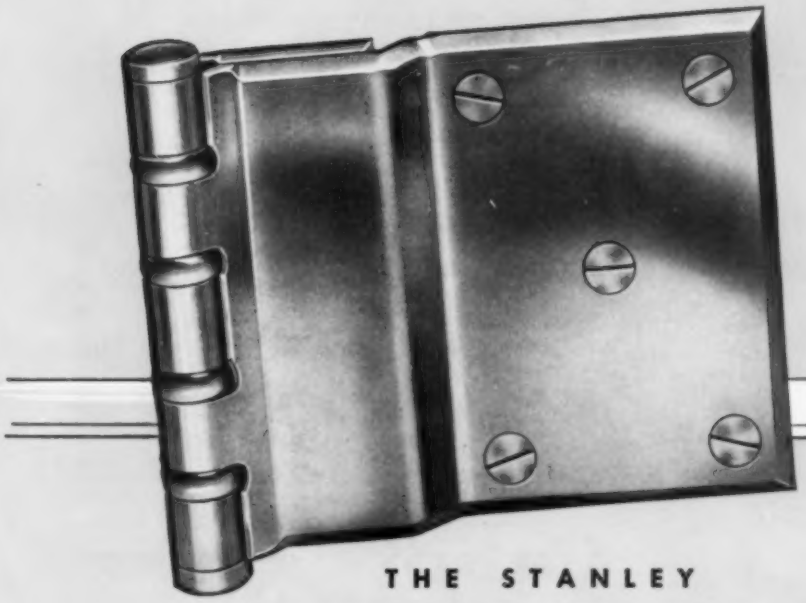

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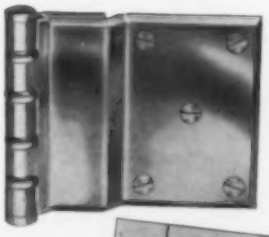

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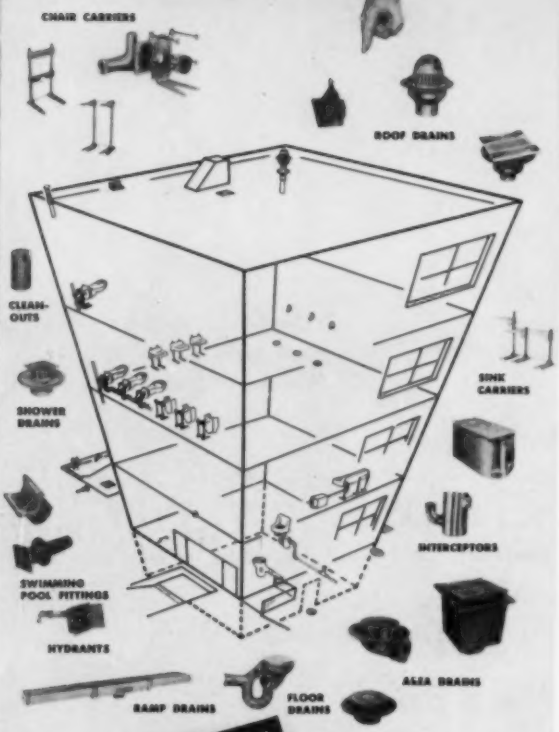

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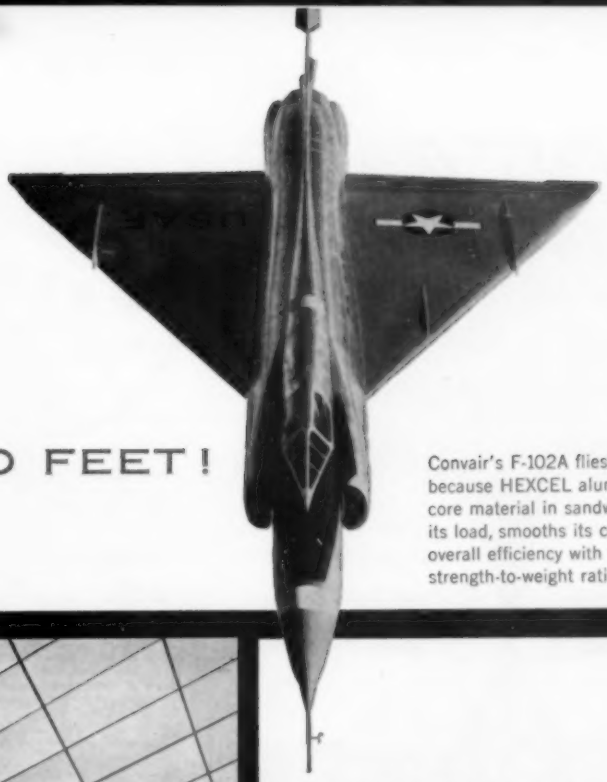

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* See LIGHTING – December 1955

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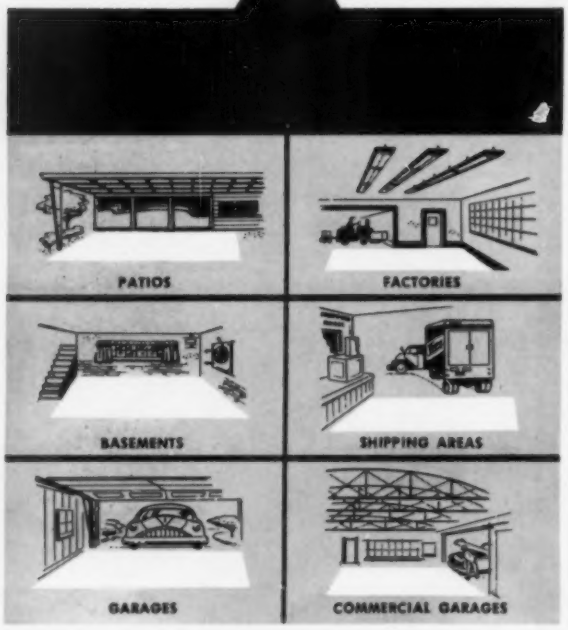

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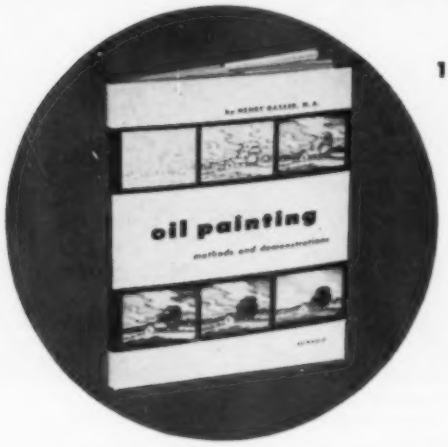

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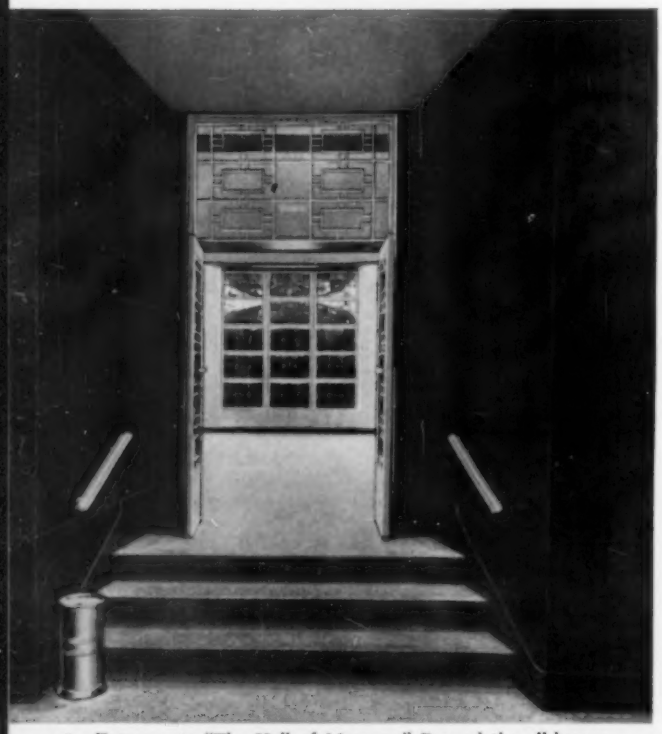

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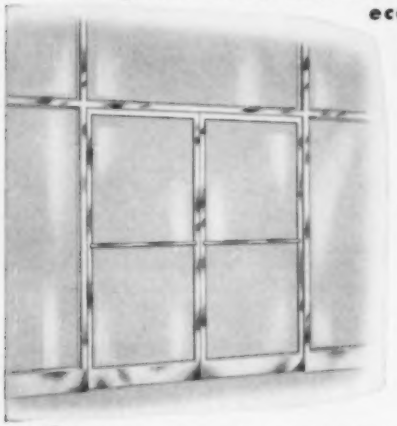

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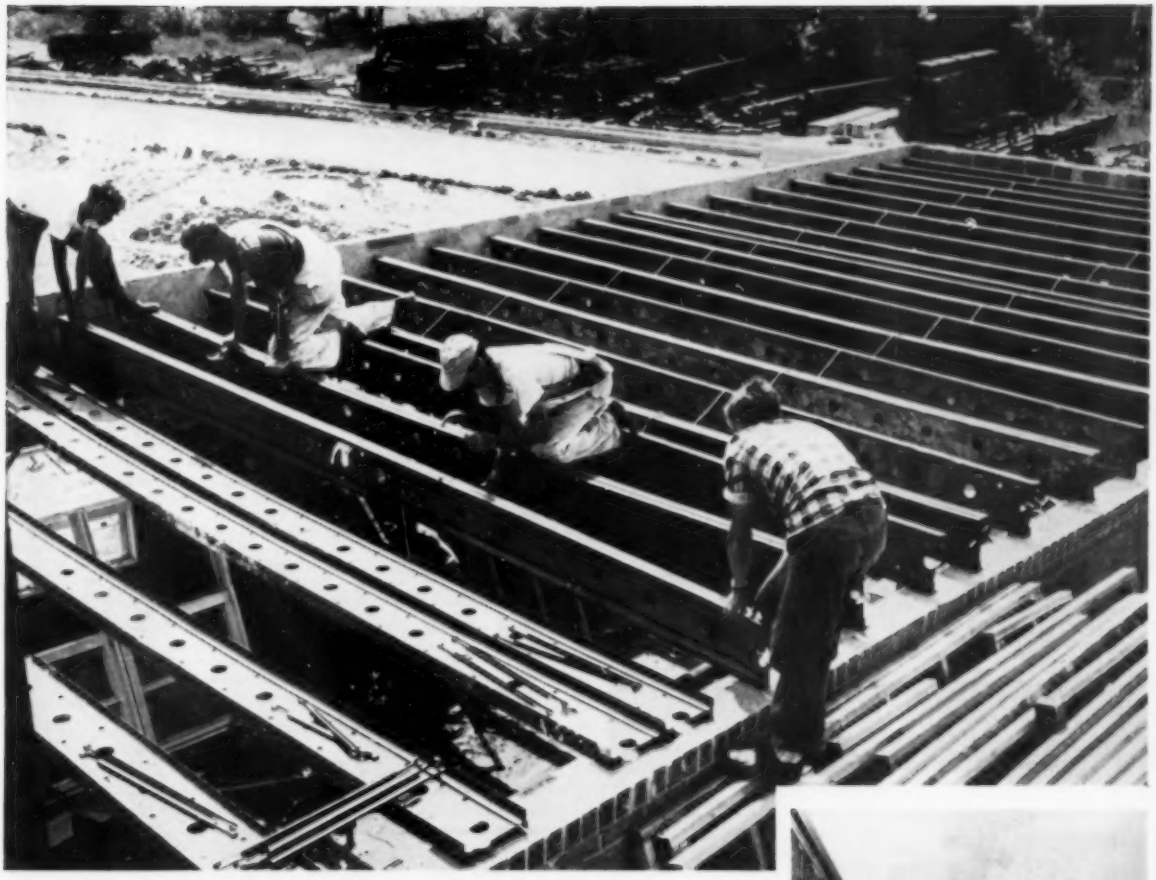

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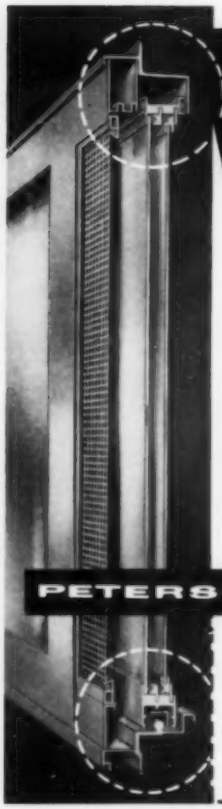

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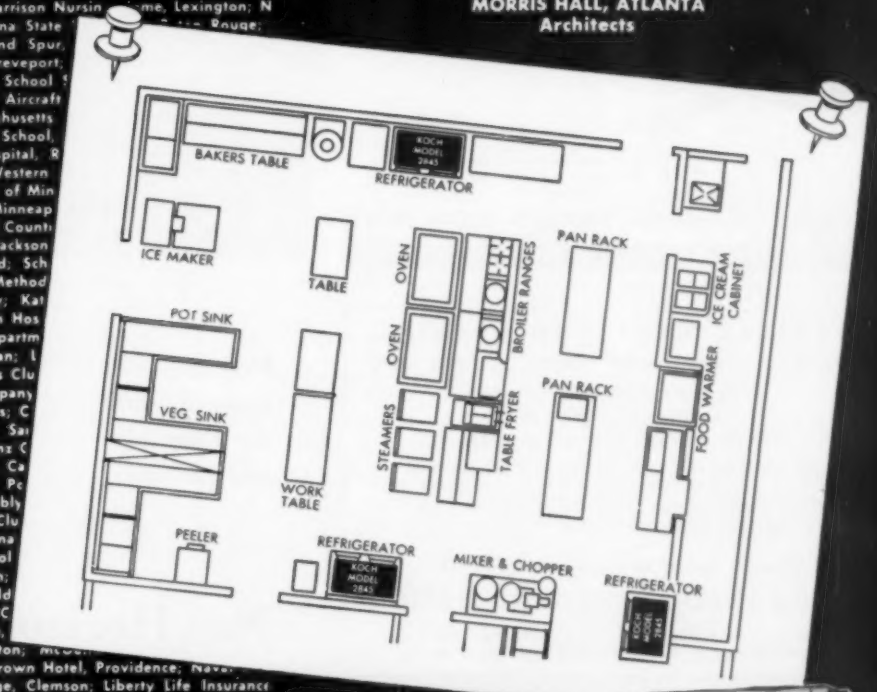

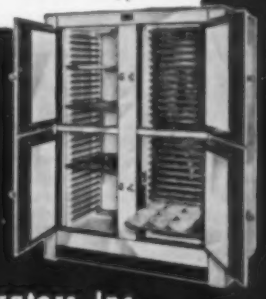

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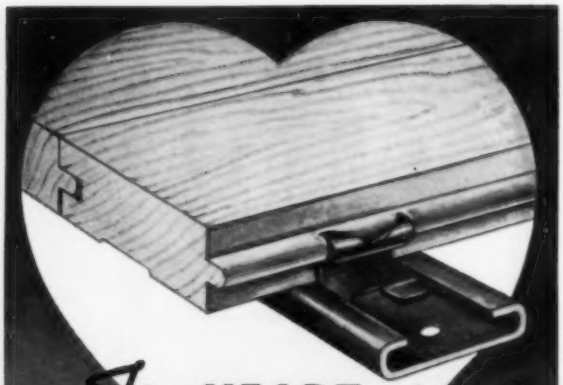

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P.S.

I recently made a trip to Toronto, Canada (a booming city, with a great deal of interesting work going on) at the invitation of the student group at the University of Toronto (a live school with a thoughtfully integrated curriculum, producing what seemed to me mature, well-trained graduates). While I was there the question came up, as it always does in a thoughtful discussion of architecture and architectural journalism: "Why don't the magazines publish more criticism of architecture?" Several times since then the matter has been raised, and I thought I might set down here some random thoughts on the subject.

First of all, let me get out of the way the obvious, first answer to the question. There *are* civil libel laws. Twice while I have been editing P/A we have been threatened with suit, each time for a very mild, reasonable, critical comment. It became clear, I think, to each of the aggrieved architects that he would do himself more harm by pursuing the matter than by letting it drop; nevertheless the risk (never fully tested in court) persists to restrain a publisher.

In the second place, let me say, perhaps cynically, that when most architects ask for criticism what they really want published is an adverse comment on some building they dislike. In other words, by criticism they mean unfavorable comment, not analysis. And it should always be of the work of another, not of their own product. I remember one prominent New York architect who had appealed at a meeting of the AIA Chapter for more criticism in the journals. It so happened that we were planning to publish a large new building of his, which I thought was important, and in many senses very well designed, but which had missed the mark in some areas of planning. I suggested to him that we publish with it a friendly critical appraisal. At first he was agreeable, in a thoughtful sort of way; but when we began discussing the idea in detail we ran into trouble. Whom should we select as critic? Some other architect? No; this would be unfair and perhaps unethical. One of the school people? No; these boys aren't "practical", their heads are in the academic clouds. Mumford? Oh, no; he had already expressed strong opinions adverse to the basic planning principle of this building; he was prejudiced. The Editor? We-el, that might be all right, if I would be sure to clear my comments with the architect. However, for real down-to-earth critical appraisal, why not go to the real estate man who was renting the building? He could point out very clearly that the design features some people didn't like hadn't interfered with rentals at all. We finally ended by making a few critical comments of our own, which were "cleared" reluctantly.

There is another type of criticism, on a different level, which some of the more thoughtful, intellectual members of the profession, teachers, and students have in mind when they use the word. It might be called philosophical criticism, or abstract criticism. Here you don't hurt the feelings of the architect so much, because his business prospects aren't severely harmed, because his client probably doesn't understand what it's all about. With this approach you praise or condemn a work because it belongs to one school (Structuralism, let's say) and not to another (Rationalism, perhaps). You may like a building, not because it is possible to reach the elevators quickly or because it is well lighted, but because it is "convincing." Or you may dislike it, not because it leaks, or even because shapes are awkward, but because it is an example of "weak imagery." These high-level abstracts do no great harm, of course (and I doubt that they do any good) because each of us can reduce the abstraction to his own prejudices.

I am coming to the conclusion (I haven't quite reached it) that architectural criticism today is very dangerous. The reason that it is resisted is a very real and valid one: published adverse comment about completed work of an architect may harm his reputation and his career; and it may in some instances prejudice use of a building. The arguments on the other side (and I have used them, many times) are that if architecture in our time is to mature it must be critically analyzed; and that since other creative activitives such as literature, drama, painting, the dance, are subject to critical appraisal, architecture should be similarly reviewed.

There are many puzzling points that might be examined here. For example, there are differences (which cannot be ignored) of permanence, investment, environment, program, budget, and so on. But most important, I think, is the fact that there are so few competent critics in our field that one opinion, supposedly considered and capable, can have very great weight. I think we would agree that architectural criticism is difficult, involving all of the value-judgments of general esthetic criticism, on the criteria for which there is much thoughtful litterature, plus many others introduced by the physical, structural and mechanical, use-of-materials problems and the functional use-for-a-social-purpose aspect.

So this art of architectural criticism is *dangerous and difficult*. This means, I think, that specially qualified people are needed as critics: not necessarily practicing architects, not necessarily historians. There are such professional critics, many of them, functioning for the benefit of the other arts. In our field in the United States we have perhaps one: Lewis Mumford; and he has said that perhaps one other—Montgomery Schuyler—was "the only one fully worthy of the name." And any *one* critic is subject to his own subjective prejudices and limitations, try as he may to avoid them. Running back through Mumford's *New Yorker* Skyline pieces, which have been gathered together into a book called *From the Ground Up*, I find that when he discusses individual buildings I disagree with his judgments as often as I agree. Without setting myself up as a critic I do believe that *another* equally competent person might have come to different conclusions in many instances.

An important, controversial novel is reviewed by many critics with diverse criteria. The reader of the reviews, in time, comes to understand and expect the attitudes of the different critics in this field, and in drama (even in appraisal of movies, and now TV programs), and he has the privilege of evaluating the evaluator. In our field this is not now true. If a journal publishes a critical commentary on a piece of architecture it is likely to be the only one the average reader will see. Therefore it has tremendous weight, and will probably stand unchallenged.

I repeat that I am just about convinced that this is very dangerous. If I felt sure that we were at the point where a number of people might become qualified, first to *see* and *examine* a work of architecture, then to evaluate objectively its esthetic impact—mechanistic, formistic, organic, and what have you—its context and environment, its technical workings, its function in relation to its program and its client, the value of what is tried new and the sense of what is adopted or adapted, the relation of the building to other work of the time, and to other work of the architect (plus many other factors that should be considered) then I would say, let's give these people outlets. I'm sure we'll try it anyway, and in time such critics will develop. But in the meantime, I feel that we should be *very* careful.

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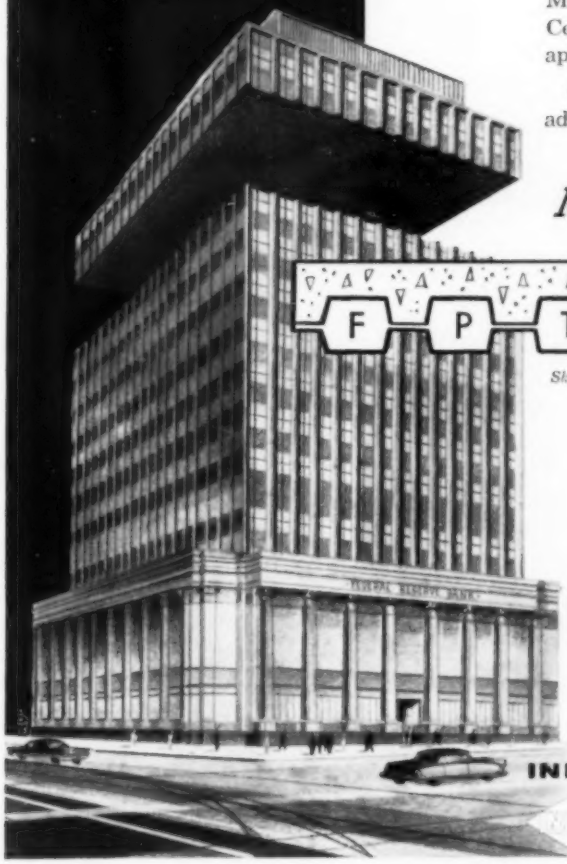

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